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IDENTIFIERS Japan

ABSTRACT

Selected papers are as follows: "Are Office Support Personnel Aware of the Ergonomical Issues Associated with Computer Keyboarding?" (Evans); "Background and Characteristics of Japanese Students Who Enroll in an American Two-Year Information Processing Program Taught in Japan" (Morgan, Wiggs); "Business Education's (BE) Role in North Carolina Tech Prep Articulation Agreements" (Joyner, Giovannini); "Comparison of Two Teaching Methods on Acquisition of Keyboarding Skills by Elementary Students" (Redmann et al.); "Determining Business Educators' Inservice Training Needs for Teaching Accounting at the Secondary Level" (McEwen); "ELM In the Academy" (Merrier, Duff); "Factors Influencing the Successful Use of Technologically-Mediated Instructional Strategies in Business Organizations" (Kizzier, Lavin); "Factors that Influence the Development of Collaborative Agreements between Universities and Corporations for Degree Program Education" (Alpern); "Higher-Order Thinking Skill Use in the Workplace" (Magee, Schmidt); "Identification of Factors that Contribute to or Impede Students' Learning in Microcomputer Applications Classes" (Wiggs, Huter); "Image Alienation and BE" (Morrison, Oladunjoye); "Importance of Workplace Basics Competencies (SCANS) as Perceived by Business Teachers" (Yang, Echternacht); "Information Processing Programs" (Morgan); "Integrating Academic and Vocational Education" (Faulkner et al.); "International Business Competencies Considered Important by Fortune's Global 500 Firms" (Zeliff, Behymer); "Is Certification a Useful Tool for Recruiting, Hiring, and/or Promoting Administrative Managers?" (Evans); "Management Training Program Evaluation" (Erthal); "New Avenues in Crisis Management" (Barton); "Occupational Profiles and On-the-Job Experiences/Perceptions of Business Management Technology and Computer Technology Associate Degree Graduates and the Resulting Curriculum Implications" (Ormerod, Ward); "Preparation to Teach Problem Solving, Decision Making, and Evaluation Skills in Business Education" (Schmidt, Kirby); "Ratings of the Georgia BE Industry Certification Standards by Georgia Educators and Business and Industry Personnel" (Crews, Stitt-Gohdes); "Recognizing Errors" (Page, Mausehund); "Relationship between Work Group Organization and Job Dimensions of Administrative Support Jobs and the Job Satisfaction of Administrative Support Workers" (Weisensel); and "School to Work Preparation of Urban Youth" (Womble et al.). (YLB)

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DELTA PI EPSILON

National Honorary Professional Graduate Society in Business Education

Proceedings

1994 National Research Conference

CE 067869

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DELTA PI EPSILON

1994 NATIONAL RESEARCH CONFERENCE

November 10-12, 1994
Philadelphia, Pennsylvania

Conference Chairperson: **Marcia Anderson-Yates**
Southern Illinois University
Carbondale, Illinois

Committee Members:
Lillian Greathouse
Marian McGorry
Scot Ober
Peter Meggison (Liaison)

Welcome to Philadelphia and the 1994 Delta Pi Epsilon National Research Conference. The Research Conference Committee members have worked for over a year in planning a program to involve a wide variety of business education researchers. We have been delighted with the response to our call for proposals for research training presentations and research paper presentations. As a result, we have been able to develop a program that includes sessions representing the full scope of what constitutes business education.

Continuing with the research training projects of Project Columbus and Enterprise Los Angeles, we offer Foundation Philadelphia. We express appreciation to everyone involved in developing this conference and to all presenters and session chairs. We hope the sessions will stimulate critical dialog on business education research continuing the rich research tradition of Delta Pi Epsilon.

Marcia A. Anderson-Yates

Welcome to the 1994 Delta Pi Epsilon National Research Conference!

Sincere appreciation is extended to Marcia Anderson-Yates, conference committee chair, and to the many persons assisting her who have made this 1994 conference a reality. An outstanding and diversified program of research reports, research assistance and training presentations, special interest projects, and general sessions awaits conference participants. Nearly 100 dedicated business education professionals who will share their expertise on topics that are current, relevant, and innovative will continue the long-standing tradition of excellence that the Research Conference has enjoyed over the years. And, as in previous years, conference *Proceedings* will be available to participants and DPE members throughout the nation.

New researchers will again have opportunity to participate in a research training workshop. Foundation Philadelphia, coordinated by Carolee Sormunen, is a mini-conference designed for participants to experience real-world research training in an accelerated format. The mini-conference has been popularized by the extremely successful Project Columbus, coordinated by Scot Ober in 1990, and Enterprise Los Angeles, coordinated by Judith Lambrecht in 1992.

I hope you will take the opportunity to attend and participate in the sessions that are aimed at conducting group research through your local DPE chapter. Two such projects, coordinated by Judith Lambrecht and Patricia Merrier, will be presented at the conference.

Yes, I am confident you will find many rewards from this year's conference--by expanding your horizons in the content-rich sessions, discussing program and research interests with colleagues, making new acquaintances, and enjoying the social functions that will foster long-lasting professional friendships.

On behalf of the National DPE Executive Board, welcome. Have a great conference!

Sharon Lund O'Neil

Delta Pi Epsilon National Executive Board

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National Executive Director ..... Robert B. Mitchell (Beta Omega)
Delta Pi Epsilon National Office

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CONFERENCE PROGRAM

Thursday, November 10

4:00 - 7:30 pm **REGISTRATION** (Pre-Assembly)

7:00 - 8:00 pm **NATIONAL PRESIDENT'S RECEPTION** (Pre-Assembly)

8:00 - 9:30 pm **GENERAL SESSION I** (Ormandy Ballroom East)

Chair: Marcia Anderson-Yates, National Research Conference Planning Committee Chair, Southern Illinois University at Carbondale, Carbondale, Illinois

WELCOME AND INTRODUCTIONS

GREETINGS FROM DELTA PI EPSILON
Sharon Lund O'Neil, DPE National President, University of Houston, Houston, Texas

ROLL CALL OF STATES
F. Stanford Wayne, DPE National Secretary

SPEAKER
Robert Morris Skaler, Architect, Forensic Architecture Historic Restoration

HISTORY OF PHILADELPHIA THROUGH POSTCARD RESEARCH

For the past 30 years, Mr. Skaler has been documenting Victorian Philadelphia and now has a postcard collection of the City that numbers over 4,000 postcards dating from the early 1900s. His slide presentation will show Center City Philadelphia as it looked prior to World War I, a more innocent time. Philadelphia at the turn of the century was going through a building boom, with new hotels and theaters being built in its center. Two new railroad stations located in the heart of the City brought thousands of commuters into the city center. Thousands of new immigrants arrived each year to swell the City's population; it was a time of great growth and great expectations. Native Philadelphians and visitors will enjoy this nostalgic tour of old Philadelphia.

OVERVIEW OF CONFERENCE

ANNOUNCEMENTS

Friday, November 11

8:30 - 10:00 am **GENERAL SESSION II** (Ormandy Ballroom East)

Chair: Scot Ober, Ball State University, Muncie, Indiana

WELCOME AND INTRODUCTIONS

SPEAKER
Richard Tannenbaum, Research Scientist, Educational Testing Service, Princeton, New Jersey

VALIDITY FOR LICENSURE TESTS: A CONTENT-ORIENTED APPROACH

The objective of licensure tests is to distinguish between candidates who do and do not possess important knowledge and skills at the time of entry into their profession. The validity of licensure tests is supported primarily by a content-oriented strategy that is grounded in a job analysis. Job analysis links the content domain of the test to the target occupation. This talk will present an overview of licensure testing and content-oriented validity and will describe the critical role that job analysis plays. Examples of job analyses conducted for teacher licensure testing will be presented.

ANNOUNCEMENTS

8:30 - 12 noon ORIENTATION TO AND CONDUCT OF A NATIONAL RESEARCH PROJECT DESIGNED TO IDENTIFY COMPUTER END USER COMPETENCIES (Concerto A)

Chair: Judith Lambrecht, University of Minnesota, St. Paul, Minnesota

A special committee has been appointed by the DPE National Executive Board to design a national research project to determine job competencies of computer end users. DPE chapters will be asked to participate in the data collection process. This session will orient chapter members to the research problem, purpose, data collection methods, and statistical design. In addition, potential participants in the study will be trained in identifying corporate sources of data and in data collection methods.

Research Project Committee Members: Judith Lambrecht, University of Minnesota, chair; Donna Redmann, Louisiana State University; Wanda Stitt-Gohdes, University of Georgia

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10:00 - 10:30 am **REFRESHMENTS** (Pre-Assembly)

10:30 - Noon **RESEARCH REPORTS A** (Concerto B)

Chair/Discussant: Kathleen M. Goelz, Rutgers University, New Brunswick, New Jersey

HIGHER-ORDER THINKING SKILL USE IN THE WORKPLACE

Instances when bank employees used higher-order thinking skills in customer service aspects of banking were examined. These instances can facilitate the teaching of thinking skills in context by the infusion method. Additionally, the employees provided perceptions of how they acquired the thinking skills. A qualitative approach was used with the behavioral event interview procedure as the main data gathering tool. *The Ethnograph* computer program was instrumental in handling the extensive quantity of text transcribed from the interviews. It allowed the thinking skill instances to be maintained in the interviewees' own words.

Robert Magee, Morehead State University, Morehead, Kentucky; and B. June Schmidt, Virginia Polytechnic Institute and State University, Blacksburg, Virginia

THE IMPORTANCE OF WORKPLACE BASICS COMPETENCIES (SCANS) AS PERCEIVED BY MISSOURI BUSINESS EDUCATION TEACHERS

The purposes of the study were to determine the importance of workplace basics competencies (SCANS) for business workers as perceived by business teachers in Missouri area vocational schools and comprehensive high schools and to compare the perceived importance of these competencies (SCANS) by both groups. Results indicated that both groups have high perceptions regarding the importance of these competencies for business employees.

Ling-Yu Melody Wen Yang and Lonnie Echternacht, University of Missouri-Columbia, Columbia, Missouri

PREPARATIONS TO TEACH PROBLEM SOLVING, DECISION MAKING, AND EVALUATION SKILLS IN BUSINESS EDUCATION

Data were collected about instruction in three higher-order skills, problem solving, decision making, and evaluation, provided for prospective business teachers in courses at National Association for Business Teacher Education (NABTE) institutions. Survey findings revealed a variety of in-class and out-of-class higher-order thinking skill development strategies and activities used that varied from 10 minutes to as long as the entire semester. Respondents provided 75 examples which were classified in five categories, with roughly 50 percent of them fitting the "teaching methodology" category.

B. June Schmidt, Virginia Polytechnic Institute and State University, Blacksburg, Virginia; and Margaret Stidham Kirby, Virginia Department of Education, Richmond, Virginia

10:30 - Noon **RESEARCH REPORTS B** (Minuet)

Chair/Discussant: Vivian Arnold, East Carolina University, Greenville, North Carolina

FACTORS INFLUENCING THE SUCCESSFUL USE OF TECHNOLOGICALLY-MEDIATED INSTRUCTIONAL STRATEGIES IN BUSINESS ORGANIZATIONS

The purpose of this national research study was to determine the opinions of training and development professionals regarding the successful use of technology as an instructional strategy. The following research questions were addressed: (1) what is the relative importance of contextual and instructional factors which exert an influence over successful use of technology? (2) to what extent do contextual and instructional factors exert a positive or negative effect on successful employment of technology?

Donna Kizzier and Ruth Schmidle Lavin, University of Nebraska-Lincoln, Lincoln, Nebraska

STUDENTS' ABILITIES TO RECOGNIZE AND ATTITUDES TOWARD GRAMMAR ERRORS

Students in business communications classes completed one of three forms of a series of questions to determine whether students could recognize errors in style or usage. The first group received all incorrect sentences, the second group received all correct sentences, and the third group received half incorrect and half correct. Significant differences were found between the all incorrect and all correct groups and between the all correct and mixed groups.

Jean Mausehund and Larry Pagel, University of Wisconsin-Whitewater, Whitewater, Wisconsin

ELM IN THE ACADEMY: HOW IS IT BEING USED FOR ADMINISTRATIVE COMMUNICATION?

The researchers analyzed 204 electronic mail messages sent to deans, directors, and department heads ("ddd" alias) during the spring quarter of the 1993-94 academic year. Propositions were formulated relating to source, topic, send time, length, copy notation, format, frequency, and enhancement features. Data analyses resulted in partial or total support of six of the propositions. Recommendations for future research and suggestions for classroom activities are included.

Patricia Merrier and Thomas Duff, University of Minnesota, Duluth, Minnesota

10:30 - Noon **RESEARCH ASSISTANCE/TRAINING PRESENTATION** (Maestro B)

Chair: Beryl McEwen, Eastern Illinois University, Charleston, Illinois

IDENTIFYING APPROPRIATE STATISTICAL TOOLS FOR DATA ANALYSIS

A very important and yet often neglected part of the process of conducting and reporting research is the analysis of data. Frequently, this neglect is a function of the researcher's unfamiliarity with statistical tools or uncertainty regarding the procedure used to select the most appropriate tool. This presentation will attempt to identify steps that can lead the researcher to selection of the most appropriate statistical tool(s). The presentation will also present information regarding some of the most used statistical tools.

Michael Burnett, Louisiana State University, Baton Rouge, Louisiana

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12 noon - 1:30 pm **LUNCHEON** (Ormandy Ballroom West)

Remarks: Jane M. Thompson, NBEA President
Janet M. Treichel, NBEA Executive Director

1:30 - 3:00 pm **RESEARCH REPORTS A** (Concerto A)

Chair/Discussant: Delcia Sadler, Pittsburgh, Pennsylvania

IDENTIFICATION OF FACTORS THAT CONTRIBUTE TO OR IMPEDE STUDENTS' LEARNING IN MICROCOMPUTER APPLICATIONS CLASSES

This study was undertaken to provide business teachers with a better understanding of factors that influence students' learning in microcomputer applications classes. Questionnaires were used to collect data to answer specific research questions. Responses from 129 subjects provided data to identify factors that contribute to or impede students' learning microcomputer applications. Cross-tabulation analysis was used to determine if relationships exist between selected factors and students' success in learning microcomputer applications.

Linda Henson Wiggs and Lavonne Huter, Southeast Missouri State University, Cape Girardeau, Missouri

ARE OFFICE SUPPORT PERSONNEL AWARE OF THE ERGONOMICAL ISSUES ASSOCIATED WITH COMPUTER KEYBOARDING?

Is there a need to spend more time helping office support personnel learn appropriate techniques associated with computer use and factors to consider when purchasing office furnishings? This presentation will share the results of a study which sought to examine ergonomical issues associated with keyboarding activities performed by office support personnel. Specifics regarding the discomfort encountered by these computer users and their awareness level and use of preventative measures, ergonomically designed furnishings and accessories will be provided.

Candy Duncan Evans, Southern Illinois University at Carbondale, Carbondale, Illinois

SPEECH RECOGNITION TECHNOLOGY: WHERE ARE WE GOING?

Speech recognition systems can be classified as discrete voice-control systems or continuous speech-to-text programs. Interviews with 34 software developers and customers indicate that discrete voice control dominates industrial use. Training includes programming software to recognize a single user voice; however, longer text dictation requires increasingly more mentally demanding skills. Discrete voice systems will provide the interface shell for most application programs by 1995. Speech-to-text transmission will be slower to penetrate the market but is seen as a keyboard alternative.

Rita Thomas Noel and Jennie Hunter, Western Carolina University, Cullowhee, North Carolina

1:30 - 3:00 pm **RESEARCH REPORTS B** (Concerto B)

Chair/Discussant: Ken Martin, University of Cincinnati

TWO MEASUREMENT TOOLS FOR DEVELOPING LEADERSHIP IN BUSINESS EDUCATION

After six years of research, the development of two measurement tools, the *Leader Effectiveness Index* and the *Leader Attributes Inventory*, is now complete. These tools were designed to assess, diagnose, and predict the leadership effectiveness of vocational educators. This presentation should be of particular interest to anyone who is concerned about the development or measurement of leadership in business education, as well as those interested in assessing, predicting, or diagnosing their own leadership effectiveness.

Eric Crane, Judith Lambrecht, Jerome Moss, Jr., and Qetler Jensrud, University of Minnesota, St. Paul, Minnesota; Curtis Finch, Virginia Polytechnic Institute and State University, Blacksburg, Virginia

RATINGS OF THE GEORGIA BUSINESS EDUCATION INDUSTRY CERTIFICATION STANDARDS BY GEORGIA EDUCATORS AND BUSINESS AND INDUSTRY PERSONNEL

This study asked a sample of the Georgia business educators and Georgia business personnel to rate the 80 Business Education Industry Certification standards. The major finding was that overall the educators rated the standards higher than the business and industry personnel. When given the opportunity to provide written comments regarding the standards, the participants' comments were negative and focused on the lack of funds, lack of flexibility, and requirements that were too strict.

Wanda Stitt-Gohdes, University of Georgia, Athens, Georgia; Tena Crews, North Metro Technical Institute, Acworth, Georgia

DETERMINING BUSINESS EDUCATORS' INSERVICE TRAINING NEEDS FOR TEACHING ACCOUNTING AT THE SECONDARY LEVEL

Changes in the workplace continue to affect business education. One area that has seen considerable change in recent years is the accounting profession. To respond to the new developments, business teachers need to continue to

update their content and delivery methods. This presentation will discuss business educators' inservice training needs for teaching accounting, preferences for training format, and factors which influence participation in inservice training.

Thaddeus McEwen, Eastern Illinois University, Charleston, Illinois

1:30 - 3:00 pm **RESEARCH ASSISTANCE/TRAINING PRESENTATION A** (Maestro B)

Chair: Randy Joyner, East Carolina University, Greenville, North Carolina

ESTABLISHING A RESEARCH AGENDA

Modern global competition demands higher and better levels of education, which, in turn, demands higher and better levels of research. Producing quality research in times of diminishing resources provides unique challenges. This session focuses on establishing a realistic research agenda supporting professional and institutional needs and assisting in establishing the foundation for a successful research agenda. The focus will be on target and impact analysis; policies and procedures; preplanning, resources, and management; and pitfalls and perks.

Donna Redmann, Betty Harrison, and Joe Kotrlik, Louisiana State University, Baton Rouge, Louisiana

1:30 - 3:00 pm **RESEARCH ASSISTANCE/TRAINING PRESENTATION B** (Minuet)

Chair: Betty Brown, Ball State University, Muncie, Indiana

DELTA PI EPSILON RESEARCH FOUNDATION FUNDING

This panel discussion will focus on funding from the DPE Research Foundation. A revised version of the DPE publication "Needed Research in Business Education" will be used as the basis for discussion of research topics for the audience.

Panelists: Leona Gallion, Indiana State University; Jolene Scriven, Northern Illinois University; Wanda Stitt-Gohdes, University of Georgia; F. Stanford Wayne

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3:00 - 3:30 pm **REFRESHMENTS** (Pre-Assembly)

3:30 - 5:00 PM **RESEARCH REPORTS A** (Concerto A)

Chair/Discussant: Alfred Kaisershot, Illinois State University, Normal, Illinois

THE IMPACT OF INSTRUCTIONAL DELIVERY METHODS ON STUDENTS AND TRAINEES IN BUSINESS AND EDUCATION

The purpose of this study was to determine which training delivery methods were perceived as effective by students and what training delivery methods were used by instructors in academia as observed by their students. Data

reveal that students perceived eleven training methods as effective; lecture was the only instructional method the students observed as used by their instructors.

Donna Everett and Calvin DeWitt, Eastern New Mexico University, Portales, New Mexico

MANAGEMENT TRAINING PROGRAM EVALUATION: EVALUATION METHODS, USE OF RESULTS, AND PERCEIVED BARRIERS

Results from a national study of management training program evaluation include these topics: how organizations evaluate training programs; how evaluation results are used; and perceived barriers to evaluation. A questionnaire was sent to ASTD trainers, with a 40 percent response rate. Findings indicate that: (1) reaction to training is a frequently used evaluation method; (2) evaluation results are frequently used to improve training programs; and (3) perceived barriers indicate lack of statistical knowledge and measurement methodology.

Margaret Erthal, Southern Illinois University at Edwardsville, Edwardsville, Illinois.

ETHICAL STANDARDS OF POTENTIAL BUSINESS TEACHERS AND POTENTIAL BUSINESSPERSONS ON SELECTED BUSINESS PRACTICES

This research study was conducted to determine if there was any significant difference in the ethical standards of business education students and business administration students. Many studies have shown that business administration students as compared to nonbusiness students and managers have a greater tolerance for unethical business practices. Do business education students have the same tolerance as business administration students? The presentation will describe the purpose of this study, significance, methodology, and findings.

Patricia Brown, University of Kentucky, Lexington, Kentucky

3:30 - 5:00 pm **RESEARCH REPORTS B** (Concerto B)

Chair/Discussant: Robert Kriebel, Marshall University, Huntington, West Virginia

IMAGE ALIENATION AND BUSINESS EDUCATION: A TIME FOR CONSOLIDATING BUSINESS SUPPORT

The primary objective of this study was to determine the impact that recent restructuring of management schemes has had upon the perceptions of the quality of the graduate of business education programs by personnel managers. Based upon a survey of 301 personnel managers in companies of varying sizes, it may be concluded that the workplace may not be of one dimension but of several depending upon the size of the company. There was a significant difference in the perceptions of personnel managers by company size in regards to preference for graduates, leadership image, and the degree of business support.

James L. Morrison, University of Delaware, Newark, Delaware; Ganiyu Oladunjoye, Delaware State University, Dover, Delaware

IS CERTIFICATION A USEFUL TOOL FOR RECRUITING, HIRING, AND/ OR PROMOTING ADMINISTRATIVE MANAGERS?

Certification is one method which can be used by employers to determine who is best qualified to fulfill the increased responsibilities being placed on employees today due to "rightsizing." This presentation will share the results of a study which sought to determine what effect certification has had on administrative managers' careers and the perceptions of Certified Administrative Managers and their personnel directors regarding the role of C.A.M. certification on hiring/promotion policies/practices.

Candy Duncan Evans, Southern Illinois University at Carbondale, Carbondale, Illinois

NEW AVENUES IN CRISIS MANAGEMENT: A COMPARATIVE STUDY OF MITIGATION AND RESPONSE EFFORTS BY MANAGERS

One of the most compelling issues in contemporary business is crisis management: today a manager must anticipate product recalls, bomb threats, workplace violence, industrial accidents, and other critical events. Virtually every large and small business finds that it must train its workforce in responding to these events. This presentation will include results of analysis of 802 business crises and illustrate how certain industries are susceptible to financial and public relations disasters. How business students and scholars can learn from well managed and mismanaged disasters at Exxon, Luby's Cafeterias, World Trade Center, Pepsi, and Hitachi will be addressed. The presentation will conclude with a brief demonstration of a software package now used at Penn State to train graduate students of business in the art of decision making during a crisis.

Laurence Barton, Pennsylvania State University, Malvern, Pennsylvania

3:30 - 5:00 pm **RESEARCH REPORTS C** (Minuet)

Chair/Discussant: Bob Bickel, Marshall University, Huntington, West Virginia

THE RELATIONSHIP BETWEEN WORK GROUP ORGANIZATION AND JOB DIMENSIONS OF ADMINISTRATIVE SUPPORT JOBS AND THE JOB SATISFACTION OF ADMINISTRATIVE SUPPORT WORKERS

Technology has had a major impact upon the business office, changing the way in which tasks are completed, the workflow, the nature of the work, and even the work group organization. The purpose of this study was to investigate administrative support jobs and the job satisfaction of administrative support workers. Surveys were completed by the Minnesota-North Dakota Chapter of PSI. Preliminary results indicate that the type of work group organization and participation in management teams affect the nature of the job and the satisfaction of administrative support employees.

Mary Weisensel, University of Minnesota, St. Paul, Minnesota

THE OCCUPATIONAL PROFILES AND ON-THE-JOB EXPERIENCES/ PERCEPTIONS OF BUSINESS MANAGEMENT TECHNOLOGY AND COMPUTER TECHNOLOGY ASSOCIATE DEGREE GRADUATES AND THE RESULTING CURRICULUM IMPLICATIONS: A COMPARISON AND CONTRAST APPROACH

The success of any associate degree program hinges upon preparing graduates to be successful employees and to build a foundation to further their education and competency. Feedback obtained from graduates and their employers is a major source of information and evaluation of the effectiveness and student preparedness of a program. The critical area affected is formulation of the curriculum. In summary, graduate/employee follow-up integrates academia, business, and industry.

Dana Ormerod and William Ward III, Kent State University, Warren, Ohio

INFORMATION PROCESSING PROGRAMS--FACTORS MOST INFLUENTIAL IN THIS EDUCATIONAL CHOICE

This study investigated factors that influence students to choose two-year information processing programs as their major field of study. University students enrolled in two-year programs in computer information processing, office information processing, and court reporting were used as population. Direct discriminant function analysis was performed to assess prediction of membership in each of the three majors. Study results are useful for career counseling and recruitment purposes.

Barbara Morgan, Southern Illinois University at Carbondale, Carbondale, Illinois

3:30 - 5:00 pm **RESEARCH ASSISTANCE/TRAINING PRESENTATION** (Maestro B)

Chair: Donna Redmann, Louisiana State University, Baton Rouge, Louisiana

PREPARING FUTURE RESEARCHERS

This session will provide information for individuals who are conducting research or who advise others in conducting research. This advising may take the form of directing thesis or dissertation research or of assisting neophyte faculty researchers. Topics include The Research Component: The Requisite Skills; Selecting a Research Topic; Designing the Research; Analyzing the Research; Reporting the Research; and Problems in Conducting Educational Research.

Donna Redmann and Michael Burnett, Louisiana State University, Baton Rouge, Louisiana; B. June Schmidt, Virginia Polytechnic Institute and State University, Blacksburg, Virginia; and Marcia Anderson-Yates, Southern Illinois University at Carbondale, Carbondale, Illinois

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Saturday, November 12

8:30 - 10:00 am **GENERAL SESSION III** (Ormandy Ballroom East)

Chair: Marian McGorry, Community College of Philadelphia, Philadelphia, Pennsylvania

WELCOME AND INTRODUCTIONS

SPEAKER
Joseph C. Chauncy, Park Ranger/Historian with the National Park Service, Independence National Historical Park, U.S. Department of the Interior

THOMAS PAINE IN COLONIAL PHILADELPHIA - PENMAN OF THE REVOLUTION

Mr. Chauncy specializes in 18th Century Philadelphia and has conducted research on political leader Thomas Paine and his influence on the American Revolution. Thomas Paine arrived in Philadelphia on the eve of the American Revolution. His fiery pen was able to bridge the gap between the lofty ideas of the well educated and the vast number of common people. His pamphlet "Common Sense," printed in Philadelphia, rallied public opinion for independence in 1776. He served as a soldier in the Revolutionary War, but his greatest service was as an author of pamphlets to revive public support when the war looked bleakest.

PRESENTATION OF ALPHA CHAPTER DOCTORAL ABSTRACTS PUBLICATION
Mindy Mass, Alpha Chapter

8:30 - 12 noon DESIGN OF A NATIONAL RESEARCH PROJECT FOR COMPLETION BY CHAPTERS (Rhapsody)

Chair: Patricia Merrier, University of Minnesota, Duluth, Minnesota

The DPE National Research Projects Committee will conduct this session designed to develop a national research project to be conducted with DPE chapter participation. During the first part of the session, attendees will select a research topic; during the last half of the session, they will begin the design procedure. Possible topics include entrepreneurship/small business management, ethics, problem solving/decision making, school-business partnerships, international business, and multiculturalism. These brainstorming/planning sessions will be the beginning of a national chapter research project to be completed by the Society over the next two years.

10:00 - 10:30 am **REFRESHMENTS** (Pre-Assembly)

10:30 - 12 noon **RESEARCH REPORTS A** (Concerto A)

Chair/Discussant: Ganiyu Oladunjoye, Delaware State University, Dover, Delaware

INTERNATIONAL BUSINESS COMPETENCIES CONSIDERED IMPORTANT BY *FORTUNE'S* GLOBAL 500 FIRMS

The purpose of this study was to identify the international business competencies considered important for secondary business students studying international business. A modified Delphi study was used. Human resource managers from US-based "Global 500 Firms" served as panel members. Consensus by the panel was reached in rating 48 competencies as important for secondary business students studying international business. The competencies will assist business educators in developing appropriate curricula, activities, and resource materials.

Nancy Zeliff, Northwest Missouri State University; Jo Behymer, University of Missouri-Columbia, Columbia, Missouri

THE BACKGROUND AND CHARACTERISTICS OF JAPANESE STUDENTS WHO ENROLL IN AN AMERICAN TWO-YEAR INFORMATION PROCESSING PROGRAM TAUGHT IN JAPAN

Business educators are quickly becoming cognizant of the need for international understanding and awareness. Students must be prepared for a world in which people and nations will be increasingly interconnected. As international and United States students attend classes in other countries, educators must broaden their understanding of other cultures. Data for this study were obtained by the researchers interviewing Japanese students who are enrolled in an American office systems program in Nakajo, Japan. An interpreter assisted in the interview process. Findings provide an understanding and awareness of demographic trends of students, business education backgrounds, and career expectations.

Linda Henson Wiggs, Southeast Missouri State University, Cape Girardeau, Missouri; Barbara Morgan, Southern Illinois University at Carbondale, Carbondale, Illinois

SECRETARIAL TASKS AND SKILLS REQUIRED IN EGYPTIAN AND AMERICAN BUSINESS ENTERPRISES: A COMPARATIVE STUDY

This study analyzed the perceptions of 122 secretaries and 65 department directors in different Egyptian business enterprises concerning the importance of 27 selected secretarial skills. A t-test was used to determine the significance of the difference between the perceptions of the two groups. In addition, computer tasks performed by secretaries were identified. The implications for curriculum revision based on the analysis of the data will be discussed. A comparison between various tasks performed by secretaries working in Egyptian and American business organizations will be presented.

Essam Shaltout, The American University in Cairo, Cairo, Egypt

10:30 - 12 noon **RESEARCH REPORTS B** (Concerto B)

Chair/Discussant: Peter Meggison, Massasoit Community College, Brockton, Massachusetts

KEYBOARDING METHODS INSTRUCTION AT NABTE INSTITUTIONS: ARE WE TEACHING TECHNIQUES TO REDUCE CTD INCIDENCE?

Carpal tunnel syndrome is classified as a cumulative trauma disorder (CTD). Almost half of all recorded work place injuries are CTDs, which are predicted to be the greatest work place hazard of the 1990s. This presentation will give a description of what NABTE institutions are teaching in keyboarding classes to help alleviate CTDs. The suggestions of a panel of keyboarding experts will also be presented.

Carol Blaszczynski and Marguerite Shane Joyce, California State University, Los Angeles, California

A COMPARISON OF TWO TEACHING METHODS ON ACQUISITION OF KEYBOARDING SKILLS BY ELEMENTARY STUDENTS

The purpose of this experimental study was to determine the effectiveness of self-paced and group-paced instruction on the achievement of keyboarding skills of third graders and the relationship between student achievement in keyboarding skills and manual dexterity. The study also sought to describe the attitudes of elementary students toward computers. Three instruments were used: Flanagan Tapping Test (dexterity), pre and post one-minute timed writing test (keyboarding), and a researcher-designed questionnaire (attitudes).

Donna Redmann and Michael Burnett, Louisiana State University, Baton Rouge, Louisiana; Christina Knight, Louisiana Vocational Association, Baton Rouge, Louisiana; June Deshotel Thompson, Jackson High School, Jackson, Louisiana

TEACHING OF KEYBOARDING TECHNIQUES IN GRADES K THROUGH 12 IN THE STATE OF MISSOURI

A descriptive survey study was used to determine the status of teaching keyboarding techniques in Missouri schools. The majority of districts begin offering keyboarding courses at the ninth grade level with a number of small and large districts teaching beginning keyboarding techniques earlier. At the high school level, the length of beginning keyboarding courses is generally 36 weeks. Both typewriters and computers with several different word processing software packages are being used to teach keyboarding.

Karen Hult, Bobbi Dennison, Paula Johnson, and Lonnie Echternacht, University of Missouri-Columbia, Columbia, Missouri

10:30 - 12 noon **RESEARCH ASSISTANCE/TRAINING PRESENTATION A** (Maestro B)

Chair: Diana Wu, Saint Mary's College, Moraga, California

GETTING RESEARCH AND TEXTBOOKS PUBLISHED

The goal of this presentation is to familiarize academic personnel who wish to publish more frequently with the procedures and targets for publishing that are most likely to be successful and to share insights that will benefit experienced, published researchers as well. A wealth of information about getting published that is not generally available will be disseminated.

Carol and Terry Lundgren, Eastern Illinois University, Charleston, Illinois

10:30 - 12 noon **RESEARCH ASSISTANCE/TRAINING PRESENTATION B** (Minuet)

Chair: Clora Mae Baker, Southern Illinois University at Carbondale, Carbondale, Illinois

CONDUCTING QUALITATIVE RESEARCH IN BUSINESS

The intent of this presentation is to motivate new, even jaded, professionals in the business education field to conduct research--to inspire them to discover the excitement, even fun, of gathering new information. Qualitative research includes information gathered from touring businesses and other organizations for the purpose of conducting observations and interviews.

Olive Church, University of Wyoming, Laramie, Wyoming

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12 noon - 1:30 pm **LUNCH (unscheduled)**

1:30 - 3:00 pm **RESEARCH REPORTS A** (Concerto A)

Chair: Mindy Mass, New York City Technical College, Brooklyn, New York

INTEGRATING ACADEMIC AND VOCATIONAL EDUCATION: AN EXAMINATION OF BUSINESS TEACHERS' ROLES

This research built upon a two-year field study that focused on teachers' roles in the integration of academic and vocational education conducted by Schmidt, Finch, & Faulkner in 1992. A total of 109 interviews were conducted at 10 secondary school sites. Of these interviews, 30 were conducted with business teachers. The analysis of the 30 business teacher interviews serves as a starting point for creating a conceptual framework that describes more specifically secondary business teachers' roles in the integration of academic and vocational education.

Susan Faulkner, Curtis Finch, and B. June Schmidt, Virginia Polytechnic Institute and State University, Blacksburg, Virginia

BUSINESS EDUCATION'S ROLE IN NORTH CAROLINA TECH PREP ARTICULATION AGREEMENTS

Many questions concerning TECH PREP Articulation Agreements between secondary and postsecondary institutions in North Carolina need to be addressed. This study focused on three research questions: (1) What type or types of educational agencies are involved with existing North Carolina TECH PREP Articulation Agreements? (2) Within those existing North Carolina TECH PREP Articulation Agreements, how do secondary students upon entry at the postsecondary educational agency receive credit for courses that they have completed that are covered by the articulation agreement? and (3) What are the business education courses most commonly or frequently included in the existing North Carolina TECH PREP Articulation Agreements?

Randy Joyner, East Carolina University, Greenville, North Carolina; Eugene Giovannini, Indiana Vocational-Technical College, Evansville, Indiana

1:30 - 3:00 pm **RESEARCH REPORTS B** (Concerto B)

Chair/Discussant: Marian McGorry, Community College of Philadelphia, Philadelphia, Pennsylvania

SCHOOL TO WORK PREPARATION OF URBAN YOUTH: PERCEPTIONS OF SECONDARY STUDENTS ENROLLED IN BUSINESS EDUCATION COURSES IN URBAN SCHOOL SETTINGS

The perceptions of students enrolled in business courses were examined to explore the viability of business education in an urban school setting. Findings suggest that students are generally positive about business courses and form perceptions toward business courses based on two factors--personal relevance and educational value of the courses. The grade level of student participants and the educational level of mothers were significant variables in explaining student perceptions toward the second factor.

Myra Womble, Nancy Ruff, and Karen Jones, The University of Georgia, Athens, Georgia

TRAVELERS' TALES DURING STUDENT TEACHING: THE EXPERIENCE OF RETURNING WOMEN BUSINESS EDUCATION STUDENTS

Business teacher education attracts a large number of returning women students. The focus of this research was to gain an understanding of what it is like to be a returning woman student during the student teaching experience. The research question was approached using the qualitative mode of hermanutic phenomenology. This mode of research questions the lived experiences of the returning women student teachers. Their voices are reflected in their lives as student teachers, as university students, and as wives/mothers. The voices of their unique experiences need to be heard to enhance the business education profession.

Sabrina Marschall, University of Maryland, College Park, Maryland

FACTORS THAT INFLUENCE THE DEVELOPMENT OF COLLABORATIVE ARRANGEMENTS BETWEEN UNIVERSITIES AND CORPORATIONS FOR DEGREE PROGRAM EDUCATION

Technology, economics, and competition influence collaborative arrangements. As universities seek to maintain educational objectives, corporate concerns focus on cost-effectiveness and worker productivity. This presentation attempts to show such collaborations are cost beneficial to both through a proposed case study of the General Motors/Rensselaer Polytechnic Institute collaboration.

Barbara Alpern, Walsh College of Accountancy and Business Administration, Troy, Michigan

1:30 - 3:00 pm **RESEARCH ASSISTANCE/TRAINING PRESENTATION A** (Maestro B)

Chair: Lillian Greathouse, Eastern Illinois University, Charleston, Illinois

QUALITATIVE RESEARCH IN BUSINESS

This presentation will address performing qualitative research in the business sector. Methodological procedures will include naturalistic inquiries, case studies, participant and nonparticipant observations, interview studies, phenomenology, orientation inquiries, and heuristics. Benefits and limitations of qualitative inquiry including time constraints, focus on process rather than outcome, and researcher affect on data collection and interpretation will be shared. A contrast and comparison of qualitative and quantitative research will be outlined.

Cheryl Evanciew, University of Georgia, Athens, Georgia

QUALITATIVE RESEARCH METHODS: THE INTERVIEW

Many researchers are wary about trying qualitative research because they do not understand the different research methods to use. This presentation will focus on one method that is used frequently in qualitative research: the interview.

Melinda McCannon, Georgia College, Milledgeville, Georgia

1:30 - 3:00 pm **RESEARCH ASSISTANCE/TRAINING PRESENTATION B** (Minuet)

Chair: Scot Ober, Ball State University, Muncie, Indiana

QUANTITATIVE DATA DEFICIENCIES AND QUALITATIVE RESEARCH

While researching a comparative study between Marshall University and East China Normal University to increase manpower development by exploring current partnerships between universities and business enterprises, the researchers are focusing on data collection instruments and procedures and the relationships among data collection and data analysis endeavors. This is part of an effort to more systematically catalogue threats to data quality in Third World settings. The catalogue is being written based on qualitative research.

Robert Kriebel, Bob Bickel, and Qang Qang Zhao, Marshall University, Huntington, West Virginia

CONDUCTING QUALITATIVE RESEARCH IN CHINA

The goal of this presentation is to share the researcher's own experience with colleagues who are interested in conducting research in an international environment. Experiences with using the qualitative research method to conduct studies in China successfully and with presenting papers at international conferences will be outlined.

Diana Wu, Saint Mary's College of California, Moraga, California

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3:00 - 3:30 pm **REFRESHMENTS** (Pre-Assembly)

3:30 - 4:30 pm **GENERAL SESSION IV** (Ormandy Ballroom East)

Chair: Lillian Greathouse, Eastern Illinois University, Charleston, Illinois

Presentation from FOUNDATION PHILADELPHIA

Carolee Sormunen, Ball State University, Muncie, Indiana
Mary Ellen Adams, Indiana State University, Terre Haute, Indiana
Eric Crane, University of Minnesota, St. Paul, Minnesota
David Dauwalder, Central Washington University, Ellensburg, Washington
Lonnie Echternacht, University of Missouri-Columbia, Columbia, Missouri
Jolene Scriven, Northern Illinois University, DeKalb, Illinois

Update on Research Projects Planning Sessions

Judith Lambrecht, University of Minnesota, St. Paul, Minnesota
Patricia Merrier, University of Minnesota, Duluth, Minnesota

PRESENTATION OF BEST PAPER AWARD

RESEARCH CONFERENCE BANQUET

6:00 - 7:00 pm	Social Hour (Pre-Assembly)
7:00 - 9:00 pm	Banquet (Ormandy Ballroom West) Entertainment by The Thad DeBrock Quartet
Host Chapter	Alpha Zeta Chapter Temple University

FOUNDATION PHILADELPHIA

Research Training Workshop

Carolee Sormunen, Coordinator, Ball State University, Muncie, Indiana
Mary Ellen Adams, Assistant Coordinator, Indiana State University, Terre Haute, Indiana
Dave Dauwalder, Team Leader, Central Washington University, Ellensburg, Washington
Lonnie Echternacht, Team Leader, University of Missouri-Columbia, Columbia, Missouri
Jolene Scriven, Team Leader, Northern Illinois University, DeKalb, Illinois
Eric Crane, Statistician, University of Minnesota, St. Paul, Minnesota

Thursday - November 10

5:00 - 7:00	**Session I** (Aria A & B) Welcome and introduction Conference overview and organization Developing a proposal/problem identification

Friday - November 11

8:00 - 10:00	**Session 2** (Aria A & B) Research questions related to developing problem-solving skills Developing and administering questionnaires Developing and conducting interviews
10:00 - 10:30	**Refreshment Break** (Pre-Assembly)
10:30 - 12:00	**Session 3** (Aria A & B) Team meetings: Planning the research questions; making work assignments Planning the questionnaire Planning the interviews
1:30 - 3:00	Team meetings (Aria A & B) Administer the questionnaire and key the data into the computer Conduct the interviews
3:00 - 3:30	**Refreshment Break** (Pre-Assembly)
3:30 - 5:00	**Session 4 (continued)**

5:00 - 5:30	**Session 5** (Aria A & B) Data-collection reports from two team leaders
7:00 - 8:30	**Session 6** (Aria A & B) Analyzing data Using statistical-analysis software
8:30 - 8:45	**Refreshment Break** (Aria A & B)
8:45 - 10:00	**Session 7** (Aria A & B) Team meetings: Each group analyzing and writing up its part of the procedures and the findings for each subquestion or for the literature review

Saturday, November 12

8:00 - 8:30	**Session 8** (Aria A & B) Data-analysis reports from three team leaders
3:30 - 4:30	**DPE Research Conference General Session IV** (Ormandy Ballroom East) Foundation Philadelphia-Overview Foundation Philadelphia-Research Report Wrap Up

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Co-hosts for Refreshment Breaks

Alpha (New York University)
Alpha in Puerto Rico
Delta (University of Cincinnati)
Epsilon (Boston University)
Theta (Indiana University)
Lambda (Northwestern University)
Mu (University of Tennessee)
Pi (Ball State University)
Rho (Ohio State University)
Upsilon (University of Mississippi)
Omega (George Peabody College for Teachers)

Alpha Gamma (University of Houston)
Alpha Delta (Emporia State University)
Alpha Zeta (Temple University)
Alpha Kappa (San Francisco State University)
Alpha Lambda (Michigan State University)
Alpha Nu (University of North Dakota)
Alpha Xi (The City University of New York)
Alpha Omicron (University of California, L.A.)
Alpha Upsilon (University of Nebraska-Lincoln)
Alpha Phi (Northern Illinois University)
Alpha Chi (Rider College)
Alpha Psi (Mankato State University)

Beta Delta (University of Georgia)
Beta Eta (Bowling Green State University)
Beta Theta (University of Wisconsin-Whitewater)
Beta Iota (Illinois State University)
Beta Kappa (Portland State University)
Beta Mu (Central Connecticut State University)
Beta Nu (Utah State University)
Beta Omicron (Southern Illinois University-Carbondale)
Beta Pi (California State University, L.A.)
Beta Phi (Montclair State University)
Beta Omega (Louisiana Tech University)

Gamma Alpha (Eastern Michigan University)
Gamma Gamma (Virginia Commonwealth University)
Gamma Delta (University of Rhode Island)
Gamma Zeta (University of Southern Mississippi)
Gamma Theta (Arkansas State University)
Gamma Sigma (Central Michigan University)
Gamma Upsilon (Robert Morris College)
Gamma Phi (Central Washington University)
Gamma Chi (University of Missouri-Columbia)
Gamma Psi (East Carolina University)

Delta Alpha (The Colorado Chapter)

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PART I
REFEREED RESEARCH PAPERS

Are Office Support Personnel Aware of the Ergonomical Issues Associated with Computer Keyboarding?

Candy Duncan Evans
Southern Illinois University at Carbondale

Abstract

This study was undertaken to examine ergonomical issues associated with computer keyboarding activities as performed by office support personnel. A questionnaire was used to acquire data. The findings of the study revealed that over half of the office support personnel surveyed are experiencing pain/discomfort associated with the keyboarding tasks they perform. Office support personnel are aware of ergonomically designed office furnishings and accessories but may not always be used or be provided such items when needed. The majority of office support personnel never do exercises/stretches for their arms, backs, or hands at work while some do neck exercises/stretches at work, but usually not frequently.

Introduction

Today's economy requires that companies hire the most qualified workers possible and attempt to keep these workers productive and healthy. Since the introduction of the personal computer in the early 1980s, advances in computer hardware and software have occurred at an astronomical pace. The study of the relationship between people and their work environments, known as ergonomics, also became more popular in the 1980s (Barrett, Kimbrell, & Odgers, 1993). However, over the last 10 years not as much emphasis has been given to the comfort of those who use technological equipment as has been given to the development of the equipment itself. This trend has begun to change as a result of health problems such as cumulative trauma disorders which are associated with repetitive work.

"Repetitive motion injuries are among the fastest growing categories of workplace injuries documented by the U.S. Bureau of Labor Statistics. . . ." (Cornell, 1992, p. 14) Such injuries account for well over half of all workplace illnesses according to the Bureau of Labor Statistics. (Stewart, 1994; Martin & Scannell, 1991) "NIOSH [National Institute for Occupational Safety and Health] predicts that unless something is done to prevent this problem a full 50% of the work force may suffer from motion injuries such as CTS [Cumulative Trauma Syndrome] by the year 2000." (Repetitive Motion Trauma Corporation)

Purpose of the Research

This study sought to examine ergonomical issues associated with computer keyboarding activities as performed by office support personnel. Although a larger proportion of occupational injuries being reported today involve individuals who do keyboarding (Chong, 1993; Stewart, 1994), not much data is available to confirm that computer-keyboard activities can be blamed for workplace injuries being reported. Some, however, feel there is a strong correlation between such injuries and computer usage (Cornell, 1992). Those studying occupational injuries report that ergonomically designed equipment and accessories will help to prevent workplace injuries which might result from computer use (Lesin, 1994) if keyboard users properly utilize such equipment and accessories (Chong, 1993). The literature reveals that costs associated with Cumulative Trauma Syndrome can be significantly decreased if workers would use preventative techniques (Repetitive Motion Trauma Corporation; Officials Anticipate Ergonomics Rule), if they would exercise (Lesin, 1994), and take regular breaks from the repetitive tasks being performed. Schafer (1993) notes that even though much work is being done to develop computer speech recognition systems, the keyboard is likely to remain the most commonly used input device in the office for a while longer. Therefore, repetitive motion disorders are likely to continue to rise unless preventative measures are taken.

Since minimal research has been conducted to determine whether individuals who complete tasks on a computer are aware of and are using ergonomically designed furnishings and accessories, whether they are feeling discomfort due to keyboarding performed at the computer, and whether they are doing anything to alleviate such pain or discomfort, this study was done.

Need for the Study

It is evident that companies today must frequently deal with problems associated with workplace injuries. If businesses are to have productive office personnel, issues related to productivity need to be researched. Suggestions for improvement in problem areas need to be provided to employers and employees. Future office employees also need to be provided with the latest information to help them determine the best methods for maintaining high productivity levels.

In order to provide up-to-da e information for personnel presently working in offices and those planning to do so in the future, researchers must regularly assess those in the field with the goal of acquiring, interpreting, and reporting data related to individual work situations.

Research Questions

In an attempt to provide information concerning ergonomical issues related to keyboarding activities performed by office support personnel, this researcher sought answers to the following questions:

1. Are office support personnel aware of and using ergonomically designed furnishings?
2. Are office support personnel aware of and using ergonomically designed accessories?
3. Are office support personnel aware of and using measures to prevent workplace injury related to keyboarding tasks performed?
4. Are office support personnel having pain or discomfort associated with the keyboarding tasks they are required to perform on the job?

Data Collection

After reviewing the literature, an Ergonomics Survey, developed by this investigator with the assistance of a physical therapist, was used to gather data. Section I consisted of demographic questions; Section II contained questions related to the use of and knowledge of ergonomically designed furnishings and accessories; Section III included questions related to preventative measures/devices utilized by office support personnel; and Section IV contained questions to determine whether pain and discomfort had been encountered by office support personnel as a result of their keyboarding activities. A panel of four educators who are involved in training office support personnel reviewed the questionnaire, and changes were made from their input. The questionnaire was then pilot tested on a group of seven office support personnel who are members of Professional Secretaries International and who keyboard on computers daily. Additional revisions were made to the questionnaire as a result of input from this group.

The questionnaire was administered to office support personnel attending a regional secretarial seminar in the Midwest. Eighty-three questionnaires were returned by the female office support personnel in attendance at the seminar; 79 of the questionnaires were deemed useable.

Findings

Awareness of and Use of Ergonomically Designed Furnishings

In order to determine whether office support personnel are aware of and are using ergonomically designed furnishings, the survey instrument was designed to provide information regarding the following: (a) workstation, (b) monitor, (c) glare screen, (d) copyholder, and (e) chair.

Of the 79 respondents, less than 50% (36) agreed or strongly agreed that the workstation where they performed the majority of their work was ergonomically designed. Forty-four respondents had their computer keyboards located on a computer workstation while 29 had it located on their desks. When asked specifically whether the work area where most of the keyboarding they do had an adjustable keyboard platform or pull-out shelf, only 22 respondents indicated (27.8%) it did. Fifty-six indicated there was no adjustable platform or shelf.

Forty-one respondents (51.9%) indicated they have their monitors placed at eye level while 35 (44.3%) do not. Three respondents didn't know or felt it was not applicable whether the top of their monitor was placed at eye level. Sixty percent (48) of the respondents use a copyholder. Of the 48 office support personnel who use a copyholder, less than 50% (22) adjust it.

Over 50% of the respondents (44) felt the chair where they sit to perform the majority of their duties is ergonomically designed. Of the 66 respondents who indicated that the height of their chair can be adjusted, 54 make adjustments to their chairs to meet their individual needs and 38 felt that chair adjustments are easy to make.

A larger percentage (78.5%) of respondents felt the depth of the chair seat was comfortable than did not (21.5%). A majority of those surveyed sit in chairs that have well-rounded fronts, are comfortably cushioned in absorbable fabric, swivel, roll easily and have either four (46.8%) or five (31.6%) casters.

Thirty of the 52 who have ch rs with backrests that tilt can adjust the tilt easily. Almost as many cannot or do not know whether they can adjust the backrest easily (44.3%) as those who can make such adjustments easily (49.4%).

Awareness of and Use of Ergonomically Designed Accessories

In an effort to determine whether office support personnel are aware of and are using ergonomically designed accessories, the

survey instrument was designed to provide information regarding the use of the following: (a) footrests, (b) armrests, (c) wristrests, and (d) mousepads.

Thirty-six respondents (45.6%) felt they needed a footrest while 17 (21.5%) were not sure whether they needed one. Out of those who felt a footrest was needed, only 14 (18.9%) had been provided with one. Over half of the respondents (41) felt they did not need an armrest to better perform their keyboarding duties. Of the 27 who did feel they needed an armrest, only 14 had been provided with one. Almost twice as many respondents felt they needed a wristrest (37) as those who did not feel they needed one (19) or those who did not know whether they needed one (21). Of those office support personnel who felt they needed a wristrest (37), less then 50% (17) had been provided one. The majority of respondents (63.3%) felt they needed a mousepad and all but one had been provided with this accessory.

Awareness of and Use of Measures to Prevent Workplace Injury

It has been suggested that exercises performed frequently are one way to relieve the stress of muscle strain and tension that can result from working at computers for extended periods of time. (Cornell, 1992; Hebert, 1992).

In an attempt to determine whether stress was present and whether respondents were doing exercises of any sort, Section III of the survey instrument included questions which revealed the following. Forty-three (54.4%) of the respondents **occasionally** feel stressed at work due to the amount of keyboarding they are required to produce on a daily basis and 6 (7.6%) **frequently** feel stressed. When asked specifically whether they do exercises/stretches at work, 53 (67.1%) never do any for their backs, 57 (72.2%) never do any for their arms and 49 (62.0%) never do any for their hands. Over 50% (41) of the respondents do neck exercises/stretches at work. Of these 41, 31 (39.2%) do them occasionally while 10 (12.7%) do them frequently.

Pain/Discomfort Associated with Keyboarding Tasks

Section IV of the survey instrument asked respondents to reveal whether they had had any pain or discomfort associated with keyboarding during the last year. Forty-three (54.4%) of the respondents indicated they had.

Conclusions

Workers today and those of the future will spend more and more of their time performing keyboarding tasks at the computer; however, are we as educators doing our job to assist them in understanding and preventing injuries that might be associated with such prolonged usages of equipment? Is there a need for us as educators to spend more time helping those presently working and those getting ready to enter the field learn appropriate techniques for computer use as well as factors to consider when purchasing equipment, furnishings, and accessories which might alleviate problems associated with keyboarding activities?

The evaluation of the findings led the researcher to the fundamental conclusion that there are a variety of issues related to ergonomics which need to be addressed and further researched.

Further, data provided by this study support the following conclusions:

1. Office support personnel are experiencing pain and discomfort associated with keyboarding.
2. The majority of office support personnel never do exercises/stretches for their arms, backs, or hands at work.
3. More office support personnel are doing neck exercises/stretches at work than the other types of exercises/stretches, but the number of those who occasionally (31) and frequently (10) do neck exercises/stretches is not much greater than those who never do neck exercises/stretches (38).
4. Frequent exercises/stretches for all body areas (neck, 12.7%; hands, 10.1%; back, 6.3%; arms, 5.1%) are minimal.
5. Some office support personnel are aware of ergonomically designed accessories which are available; others are not.
6. Of those who feel they need accessories such as footrests, armrests, and wristrests, few are receiving them. However, the majority of office support personnel needing mousepads are receiving them.
7. Office support personnel are aware of ergonomically designed furnishings and yet less than 50% feel they are performing the majority of their work at workstations which are ergonomically designed.
8. Less than one-third of office support personnel have adjustable keyboard platforms or shelves. Monitors and copyholders are not always being adjusted to meet individual needs.
9. Over 50% of office support personnel are using chairs which are ergonomically designed.

Recommendations

Based upon the findings of this study, the following recommendations are presented to business educators:

1. Business educators should survey other groups of individuals working in business and industry to determine whether they are aware of and are using ergonomically designed furnishings and accessories, whether they are encountering discomfort or pain associated with their keyboarding tasks, and whether they are aware of and are using preventative measures to alleviate such discomfort and pain.

2. Business educators should use the information obtained from this study to educate those presently in the field and those getting ready to enter the field on how important it is to purchase furnishings and accessories which will meet individual needs.

3. Business educators should use the information obtained from this study to evaluate their present methods of teaching to determine whether techniques are being taught properly for the equipment being used and tasks being performed.

4. Business educators should look for opportunities to assist those who are presently working in the field with developing methods for handling the stress associated with the keyboarding tasks they are required to perform daily.

5. Business educators should work with business and industry in developing ergonomic programs for employees.

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The Background and Characteristics of Japanese Students Who Enroll in an American Two-Year Information Processing Program Taught in Japan

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Abstract

Business educators have become cognizant of the need for international understanding and awareness. Today's students will work in a world in which peoples and nations are becoming increasingly interconnected. This study was undertaken to provide a better understanding of Japanese students entering Office Systems Specialty Programs in Japan.

To obtain data for the study, the researchers conduced individual interviews with students on the Southern Illinois University campus in Nakajo, Japan. An interpreter assisted the researchers in the interview process. Findings provide a better understanding and awareness of demographic trends of subjects, their business education backgrounds, and their career expectations.

Introduction

At the third general session of the NBEA National Conference in Kansas City, Dr. Richard Lee spoke to business educators about the U.S. Industrial Competitiveness in Global Markets (1994). According to Dr. Lee, (1994) the United States dominated the world in 1975 claiming 75% of the world's economy; however, by 1992 that percentage had dropped to only 22%. "The role of the United States has changed from that of a dominating power . . . to that of a major player who must consider other players in the international system (Carlock, 1991).

As United States businesses face shrinking domestic markets, business leaders have recognized the need to increase market shares and look beyond the national boundaries for new business. The number of multinational companies has grown rapidly. Falling trade barriers and political events such as the collapse of communism in Eastern bloc countries and the creation of the European Economic Community have provided new opportunities for U.S. companies to expand internationally.

While progressive businesses have seized opportunities provided by international markets, school systems have not been as quick to respond to the international arena. According to Beistle (1991) school systems in the United States have operated their programs as if the United states is the only commercial and industrial entity and not part of the total world economy.

Business teachers know that most students today will not work in a foreign country. Yet, these students will be a part of the international marketplace, where exports and imports between and among nations will affect everyone from the consumer to the member of the work force (Hosler, 1992). Business educators at all levels are becoming more aware of the need to develop an understanding of the global marketplace, people from other cultures, their ways of doing business, and their educational systems.

Recognition of the need for an international awareness and understanding has become extremely important for business administrators, teachers, and students. The number of international students attending classes in United States colleges is increasing yearly. Accreditation agencies such as AACSB now include standards for international dimensions for all business programs. Educational exchange programs for students, teachers, and administrators are strongly encouraged in most colleges of business.

Teaching and learning with a "global perspective" is the focus of the 1991 NBEA Yearbook. Business education leaders are aware of the need to realign programs and curricula to prepare workers and consumers for the world beyond the nation's boundaries. ". . . knowledge of how other countries affect us and how we affect the rest of the world is needed" (Echternacht, 1991, p. iii).

Purpose of Study

The purpose of the study is to contribute to a better understanding of the international business education environment. Specifically, the study is designed to help develop a better understanding of the background and characteristics of Japanese students who enroll in an American two-year office systems programs taught in Japan.

Statement of Problem

The problem of this study is to identify secondary office systems training and the characteristics and career expectations of Japanese students entering an American two-year office systems program. Specific research questions:

1. What are the demographic characteristics of Japanese students entering an American two-year office systems program in Japan?

2. What is the educational background of Japanese students entering a two-year American Office Systems program in Japan?

Significance of the Study

One of the six national educational goals to be met by the year 2000 is that every adult be a skilled, literate worker and able to compete in a global economy (Tifft, 1990). "The world is now an international society" (Carlock, 1991, p. 2). Today's students will compete in a global economy, and they will live and play in an international society.

Business educators are quickly becoming cognizant of the need for international understanding and awareness. Today, business education must prepare students for tomorrow's world--a world in which people and nations will be increasingly interconnected (Knief, 1989).

As more international students attend classes in the United States and more students from the United States are encouraged to attend classes in other countries, educators need to begin to develop a better understanding of international students. Faculty and students often have only a vague understanding of where international students come from and what factors have influenced them in their career choices. Little is known about their culture, their backgrounds, and their career expectations. Business educators, especially those teaching international students, need to broaden their understanding of international students, share knowledge with all students, and include international topics as an integral part of the business education curriculum.

Methods and Procedures

A survey instrument was developed to collect data that could identify the backgrounds and characteristics of Japanese students who enroll in an American two-year information processing program being taught in Japan. Part I of the instrument included questions concerning demographic data including gender, marital status, number of brothers and sisters, community size, and employment level of parents or guardians. Part II of the instrument was designed for respondents to indicate business education classes taken at the secondary level and to identify the career expectations of these students. The research instrument was critiqued by three university office systems faculty members to determine if the needed data could be determined by the content of the instrument. It was then field tested with Japanese students enrolled at Southeast Missouri State University.

The respondents were students planning to enter the Office Systems and Specialties Department at Southern Illinois University at Nakajo, Japan. The researchers conducted individual interviews with students on the Southern Illinois University campus in Nakajo, Japan. The survey instrument was used to gather information from this group. Each student was asked questions by one of the researchers, with the assistance of an interpreter while the other researcher recorded the data. Questions often needed to be repeated in a different format for students to understand exactly what was being asked. These interviews were conducted during November and December, 1993 at the Southern Illinois University campus in Nakajo, Japan.

Treatment of the Data

The data were analyzed by tabulating responses and then calculating percentages. These frequencies and relative frequencies were used to create graphs which allow for easy description of the findings. The analysis showed the outcome based on the entire sample.

The first research question identified for this study addressed the demographic characteristics of each respondent for this study for the following variables:

A. gender
B. marital status
C. employment status of father, mother, and spouse
D. employment classification of father, mother, and spouse
E. relationship of employment goals to marital status
F. preferred employment location

The second research question identified for this study addressed the business education background of each respondent for this study for the following variables:

A. typing-keyboarding
B. computers
C. accounting
D. calculating/business machines
E. commercial high school or traditional high school
F. bilingual aspirations
G. international employment aspirations

Findings

The problem of this study was: Identification of the background and characteristics of Japanese students who enroll in an America two-year information processing program in Japan.

Data presented in this paper describe characteristics of Japanese students enrolled in an associate degree program in Office Systems and Specialties during fall semester, 1993, in the College

of Technical Careers, Southern Illinois University Campus in Nakajo, Japan.

Research Question I: What are the demographic characteristics of Japanese students entering a two-year American office systems program in Japan?

Gender

The gender of students responding to the questionnaire is shown in Table I. Females comprised 79% of the total respondents and males comprised 21%.

Table 1
Percentage of Total Respondents by Gender

Gender	Percent
Female	79%
Male	21%

Marital Status

Student response by major and marital status are shown in Table 2. "Single" was the most frequently occurring category for the respondents with 93% while only 7% were married.

Table 2
Percentages of Student Responses by Marital Status

Marital Status	Percent
Married	7%
Single	93%

Employment Status of Father, Mother and Spouse

Percentages of respondents by employment of father, mother and spouse, are shown in Table 3. Employed full-time was the category that 100% of the fathers fit into while only 30% of the mothers were employed. Seven percent reported their mothers were deceased. Only 7% of the respondents were married and all those spouses were employed. No respondents were employed.

Table 3
Employment Status of Father, Mother and Spouse

Employment Status	Percent Employed	Percent Unemployed
Father	100%	---
Mother	30%	70%
Spouse	100%	---

NOTE: 7% of the respondents reported no living mother.

Employment Classification of Father, Mother and Spouse

Student responses to the classification of employment of father, mother and spouse is shown in Table 4. Of the 30% of the mothers who work, all 100% work in an office while 36% of the fathers are employed in an office. Twenty-one percent of the fathers are engineers while 43% own their own business.

Table 4
Employment Classification of Father, Mother and Spouse

Employment Classification	Own Business	Engineer	Work in Office
Father	43%	21%	36%
Mother			100%
Spouse			100%

Relationship of Employment Goals to Marital Status

Table 5 indicates the percentages of respondents who plan to seek employment using their associate degree in office systems after marriage. This is shown by gender.

Table 5
Relationship of Employment Goals to Marital Status

Gender	Employment After Marriage	No Employment After Marriage	Undecided
Male	100%	—	---
Female	82%	9%	9%

Preferred Employment Location

The geographic location in which the respondents plan to seek employment is indicated in Table 6. The largest percent of female respondents (54%) plan to seek employment in or near their home town area while the smallest percent (18%) will work anywhere (Japan or U.S.A.). Employment in Tokyo received 21% of the responses. Males had a 100% response to work in their fathers' companies.

Table 6
Preferred Employment Location

Employment Location	Males	Females
Tokyo	—	27%
In or near home town	—	54%
Fathers' companies	100%	—
Anywhere	—	19%

Research Question II: What is the educational background of Japanese students entering a two-year American Office Systems program in Japan on the variables of:

1. typing/keyboarding
2. computers
3. accounting/bookkeeping
4. calculating/business machines
5. commercial high school vs. traditional high school
6. bilingual aspirations
7. international employment aspirations

Educational Background

Educational background of student respondents is shown in Table 7. Data revealed that on the variables used in this study, the least amount of educational training (86%) was given on use of computers and the most training (43%) was given on calculating/business machines.

Table 7
Percentages of Total Student Respondents by Prior Business Education Instruction

Educational Instruction	None	Some
Typing/keyboarding	64%	36%
Computers	86%	14%
Accounting	71%	29%
Calculating/business machines	57%	43%

Secondary Education

Attendance at commercial vs. traditional high school for the respondents is indicated in Table 8. It should be noted here that respondents stated that Japanese students who are usually going on to college attend a traditional high school while those who are seeking employment upon completion of high school usually attend a trade high school. The commercial high school was the only one mentioned by respondents other than the traditional one.

Table 8
Attendance at Commercial or Traditional Secondary Schools

Secondary School	No	Yes
Traditional	21%	79%
Commercial	79%	21%

Employment Aspirations

Respondents were asked to indicate if they wanted to work in a bilingual company and/or an international company. Data revealed in Table 9 that 100% of the respondents plan to be bilingual and use this in their employment while only 86% want to work in an international company.

Table 9
Employment Aspirations of Bilingual and International Employment Goals

Employment Goal	Yes	No
Bilingual	100%	---
International Company	86%	14%

Discussion and Summary

This study was conducted to present a better understanding of the background of Japanese students who select an America office systems program that is being taught in Japan, rather than a Japanese program. The difficulty with the comprehension and understanding of the Japanese students made it difficult to receive a useable response from many of the intended questions. The use of an interpreter allowed for re-wording and re-stating questions. However, even this did not allow all questions to be understood. Many respondents were enrolled in the early English classes when the researchers visited the Nakajo campus to collect data.

Discussion with the respondents led the researchers to believe that many of the students wanted the prestige of an American education. It appears to be a valuable tool in securing employment. Some respondents indicated an education would even help make a better marriage. It is felt a better job can be secured with this two-year degree. The job market is very tight in Japan now. Japan's unemployment rate climbed to 2.7 percent in October. 1993, the highest in nearly six years. The October jobless rate was up 0.1 percentage point from September. This was the highest rate since February, 1988. (*The Japan Times*, December 1, 1993.)

Most of the students appear to realize that the world today is being internationalized. They all want to learn and become proficient in English. However, they say it is very difficult and many are afraid of failure in this class. They know that the business world is changing and they must change with it. Women are beginning to look for a career--not just work two or three years then get married. Social customs are beginning to change in Japan. It was indicated that the salary one will receive is determined by many factors such as age, number of dependents, amount of education, and gender.

One student interviewed attended four years and graduated from a private high school in Chicago, Illinois. She accomplished her goal of learning English and becoming bilingual. This student does not want to go back to the United States. Most of the respondents indicated they want to visit the main campus. Many want to continue for a bachelor degree and some just want to see Carbondale and the campus. Some respondents state a concern for safety in Carbondale, in Illinois, and in the United States. The students have heard stories about crime and robbery. Respondents are concerned and afraid of this kind of

environment, which is very different than the Japanese environment.

The biggest fear of the respondents is not passing their classes. They are especially concerned about passing English and using computers. The researchers were surprised to see just how little the respondents really know about or use computers. It appears the Japanese students are not as computer proficient as the United States students. Studies by Morgan (1992) and Nikravean (1986) both indicate that students in the United States have a much larger and more detailed background in business education classes at the secondary level than the Japanese students.

Conclusions

Based on the data gathered through the interviews conducted, these conclusions were drawn:

1. Japanese students want the prestige of an American education.
2. The Japanese culture is changing as more females are educated.
3. More women are working today and more young adult females plan to work.
4. The need to be bilingual and move into the international market is as pressing and important today in Japan as it is in the United States.
5. Japanese students do not have similar backgrounds in business education preparation as those of United States students.

Recommendations

The data found in this study may serve as a warm-up step for research to come. Another study needs to be done with the same respondents after they are more proficient in English. This will allow for more information to be gathered as more detailed questions can be asked and understood. A similar study needs to be done on Japanese students who are presently enrolled in the same program on the main campus in Carbondale, Illinois. These two studies could then be compared and contrasted.

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Business Education's Role in North Carolina TECH PREP Articulation Agreements

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Abstract

Many questions concerning TECH PREP Articulation Agreements between secondary and postsecondary institutions in North Carolina need to be addressed. This study focused on three research questions: (1) What type or types of educational agencies are involved with existing North Carolina TECH PREP Articulation Agreements? (2) Within those existing North Carolina TECH PREP Articulation Agreements, how do secondary students upon entry at the postsecondary educational agency receive credit for courses that they have completed that are covered by the articulation agreement? and (3) What are the Business Education courses most commonly or frequently included in the existing North Carolina TECH PREP Articulation Agreements? Based upon preliminary analysis, one question still remains—will TECH PREP programs as they currently exist in North Carolina assist in providing a workforce that is better prepared for the 21st Century?

Introduction

At the turn of the century, 70% of the labor force will not require a baccalaureate degree, but 60% of the labor force will require some type of postsecondary preparation less than a baccalaureate degree. On a national basis, 24% of our young people exit secondary education before graduating from high school; and at the most, 25% of the ninth graders who enter high school complete a baccalaureate degree. It is likely that between 50% and 60% of our young people are leaving school not prepared for further learning or productive employment (Hoerner, 1992). Therefore, TECH PREP, a fairly recent phenomenon in education is part of the educational reform movement that may solve this problem.

Educators all over the United States have been quick to embrace TECH PREP. It was first discussed by Dale Parnell, who is considered the "father" of TECH PREP when he was president of The American Association of Community and Junior Colleges, in THE NEGLECTED MAJORITY (Parnell, 1985). Parnell maintained that TECH PREP may be an ideal solution for the middle 50% of students—those students who will be entering occupations requiring some post high school training but not necessarily a baccalaureate degree. A recent poll conducted by the National School Board Association revealed that 92% of local school policymakers support programs that would encourage secondary and postsecondary schools to develop applied academics courses that better coordinate vocational-technical education programs (Parnell, 1992). According to Hull (1992), able and teachable students who find the classic education ineffective in preparing them for technically elite jobs fall through the cracks in our educational system. Thus, TECH PREP may help eliminate this potential problem.

TECH PREP is an educational program that was developed and designed to prepare a competitive workforce. Further, TECH PREP is a series of courses and related school-supervised work experiences that prepare students for a successful transition from secondary school to postsecondary technical education or to work. Most often, it is a 2 + 2 program which involves two years of secondary and two years of postsecondary technical training. Its curriculum provides applied academic and technical courses that lead to an associate degree, a certificate in a specific technical field, or completion of an apprenticeship experience. It joins high schools with community and technical colleges to offer stronger, better programs without overlap of content. Completion of the secondary portion of a TECH PREP program must signal academic and technical competence to higher education institutions and employers—the content of TECH PREP programs must be as rigorous and maintain the same integrity as college preparatory programs.

Purpose/Objectives

The Carl D. Perkins Vocational and Applied Technology Education Act of 1990 (P. L. 101-392, Title III, Part E) established a TECH PREP education program whereby federal grants are offered to states to plan and successfully implement training for the middle majority. In addition, the act provides funds to local consortia of schools and colleges to develop TECH PREP programs (Gold, 1991). Many North Carolina local education agencies (LEAs) have used these moneys to plan, develop, and implement TECH PREP programs. In North Carolina, school systems have complete autonomy in developing TECH PREP Articulation Agreements. Therefore, the content of the articulation agreement is unknown as well as how it functions due to

the lack of a universal understanding of the TECH PREP Articulation Agreements by educational leaders at all levels in North Carolina. Thus, many questions concerning the TECH PREP Articulation Agreements between secondary and postsecondary institutions in North Carolina need to be addressed. This study focused on three research questions: (1) What type or types of educational agency or agencies are involved with existing North Carolina TECH PREP Articulation Agreements? (2) Within those existing North Carolina TECH PREP Articulation Agreements; how do secondary students, upon entry at the postsecondary educational agency, receive credit for courses that they have completed that are covered by the articulation agreement? and (3) What are the Business Education courses most commonly or frequently included in the existing North Carolina TECH PREP Articulation Agreements?

Methodology and Data Collection

To answer the three research questions, the director of federally funded vocational education programs within the North Carolina Department of Public Instruction was contacted. The director was asked to identify three model TECH PREP programs in each of the three regions of North Carolina—Mountain, Piedmont, and Coastal. After the nine model programs—three from each of the three regions—were identified, those nine LEAs were contacted; and they were requested to send copies of their TECH PREP brochures that outline the courses involved in TECH PREP Articulation Agreements as well as copies of their TECH PREP Articulation Agreements to the researchers. (The request was limited to Business Education courses.)

Survey Instrument. Upon receipt of the materials from all nine LEAs, the researchers then prepared a survey instrument—a questionnaire. The questionnaire was based on information obtained from the nine model programs that forwarded copies of their existing TECH PREP Articulation Agreements. Specifically, the survey instrument addressed the following areas: (1) Does a TECH PREP agreement exist? (2) If yes, with what type of education agency? (3) If yes, what courses are included within the agreement? (4) If yes, how does the agreement work with the other education agency—how do the students receive credit or placement upon entry at the other education agency? and (5) What are the most commonly or frequently included Business Education courses in TECH PREP Articulation Agreements?

Reliability and Validity. After the questionnaire had been developed, the instrument was reviewed by three individuals who are perceived as experts in TECH PREP Articulation Agreements. Further, these individuals indicated that the instrument was designed to obtain the data needed to answer the three research questions that were to be addressed in this study—it was valid and reliable. Upon receipt of this validity and reliability certification, the questionnaire was duplicated and mailed to Vocational Education Directors for all 148 North Carolina school systems. The 148 Vocational Education Directors were asked to complete and return the questionnaire along with copies of their articulation agreements by a specified date to the researchers. In order to achieve a reasonable response rate, a procedure to either mail a follow-up card or place a telephone call was developed to remind those vocational education directors that have not responded by the specified date.

Data Analysis

Data were collected by using a survey questionnaire devised by the researchers. The instrument asked vocational directors in North Carolina's 148 school systems to indicate the status of TECH PREP Articulation Agreements within their school system. Specifically, the questionnaire addressed two areas: (1) whether or not a TECH PREP Articulation Agreement existed; and if an agreement existed, what guidelines were included within the agreement to articulate secondary school coursework with postsecondary educational agencies; and (2) whether or not selected Business Education courses were included within those agreements. Number Cruncher, a microcomputer statistical analysis software, was used to generate frequency distributions and percentages.

Findings

The findings are presented in six sections. They are: (1) Usable Responses, (2) Current Status of TECH PREP Articulation Agreements, (3) Future Existence of TECH PREP Articulation Agreements, (4) Education Agencies Involved with TECH PREP Articulation Agreements, (5) Articulation Procedures, and (6) Business Education courses included within existing TECH PREP Articulation Agreements.

Usable Responses. Ninety of the 148 questionnaires were returned for a usable response rate of 60.8%. Information contained within Table 1 describes the number of responses received by the three regions in North Carolina: Coastal, Piedmont, and Mountain. School systems located in the Coastal region of North Carolina returned thirty-nine questionnaires representing 43% of the total responses. School systems located in the Piedmont region of North Carolina submitted 35 completed instruments or 39% of all usable responses. And, school systems in the Mountain region of North Carolina returned 16 responses or 18% of the usable responses.

Table 1
Response Breakdown by Region

Region	Number of Responses	Percentage of Return
Coastal	39	43%
Piedmont	35	39%
Mountains	16	18%
Totals	90	100%

Current Status of TECH PREP Articulation Agreements. Information presented in Table 2 indicates that 76 of the school systems responding—approximately 85%—indicated that their educational agency had, in place, a TECH PREP Articulation Agreement with another educational institution. Further, four school systems that responded to the survey—4% of the total respondents—do not have a Tech Prep Articulation Agreement. Hence, the remaining 10 school systems that responded—approximately 11%—did not respond to the question.

Table 2
Current Existence of Tech Prep Articulation Agreements

Existence of an Agreement	Number of School Systems	Percentage of School Systems
Have an Agreement in Place	76	85%
Do not Have an Agreement in Place	4	4%
No Response	10	11%
Totals	90	100%

Future Existence of TECH PREP Articulation Agreements. Information contained within Table 3 indicates that 13 of the 14 schools not responding "yes" to having a TECH PREP Articulation Agreement in place indicated that they planned to develop such an agreement. Thus, 88 of the school systems repsonding—approximately 98%—either have a TECH PREP Articulation Agreement in place or plan to develop an agreement. Only 2 school systems that responded to the survey indicated that they did not have a TECH PREP Articulation Agreement and that they did not have plans to develop a TECH PREP Articulation Agreement.

Table 3
Future Existence of Tech Prep Articulation Agreements

Existence of an Agreement	Number of School Systems	Percentage of School Systems
Have or Will Have an Agreement in Place	88	98%
Will not Have an Agreement	2	2%
Totals	90	100%

Educational Agencies Involved in TECH PREP Articulation Agreements. Information in Table 4 describes the types of educational agencies that are involved with school systems in a TECH PREP Articulation Agreement. Eighty-six of the school systems that responded to the survey—approximately 95%—indicated the type(s) of educational agency(ies) that were involved in a TECH PREP Articulation Agreement with the school system(s); 4 school systems who indicated that a TECH PREP Articulation Agreement was in place did not identify the educational agencies that were involved with TECH PREP Articulation Agreements. Of the 86 school systems who identified the type(s) of educational agency(ies) that were involved with their TECH PREP Articulation Agreement, 72 school systems—approximately 84%—indicated that their TECH PREP Articulation Agreements are with public, technical, or junior colleges only. Another seven school systems that responded—approximately 8%—indicated that they had TECH PREP Articulation Agreements not only with these types of colleges (public, technical, and junior colleges) but with other educational agencies as well. For example, two of these seven school systems reported that they also had TECH PREP Articulation Agreements with a private college/university, another two of the seven school systems reported that their TECH PREP Articulation Agreements included both private and public colleges/universities, and the remaining three of the seven school systems indicated that their TECH PREP Articulation Agreements included publicly sponsored apprenticeship programs. Thus, 79 of the school systems responding—approximately 92%—have articulation agreements with public, technical, or junior colleges.

Table 4
Types of Educational Agencies Involved in Articulation Agreements

Educational Agency	Number of School Systems	Percentage of School Systems
Public, Technical, Community, or Junior Colleges ONLY	72	84%
Public, Technical, Community, or Junior Colleges and other	7	8%
Other Educational Agencies	7	8%
Totals	86	100%

Articulation Procedures. Information presented in Table 5 describes how students upon enrollment at the educational agency(ies) involved with a TECH PREP Articulation Agreement receive credit or advanced placement. Eighty-three of the school systems that responded—approximately 92%—revealed how students receive credit or advanced placement based upon the contents of a TECH PREP Articulation Agreement, for courses completed at the school system prior to entry at the other educational agency involved with the TECH PREP Articulation Agreement. Seven of the school systems that indicated a TECH PREP Articulation Agreement was already in place did not indicate how credit or advance placement was awarded. Of the 83 school systems that responded to this question, 21—approximately 25%—of the school systems responding indicated that college credit is awarded upon completion of the articulating educational agency's exam only. Another 30 of the 83 school systems responding to this question—approximately 36%—indicated that two procedures were used when awarding credit or advanced placement for courses completed prior to entry at another institution involved with the TECH PREP Articulation Agreement. These 30 school systems stated that students receive college credit for courses taken prior to entry upon comple-

tion of the educational agency's exam in conjunction with other means of receiving credit or placement. However, these 30 school systems did not identify the other means of receiving credit or placement. Another ten school systems—approximately 12%—indicated that students receive advanced placement in a higher level class and are awarded college credit only. Another 19 of the 83 school systems responding—approximately 23%—reported that students receive advanced placement in a higher-level postsecondary class in conjunction with being awarded college credit for courses completed prior to enrollment at the other educational agency involved with the TECH PREP Articulation Agreement. Another eight of the 83 school systems responding—approximately 10%—reported that students are given advanced placement in higher-level classes and are not awarded college credit—no credit is given for courses completed within the school system. Another 11 school systems that responded—approximately 13%—"wrote in" that, within their TECH PREP Articulation Agreements students either receive credit or placement if a predetermined grade is earned by the student in the high school course completed prior to entry at the articulating educational agency.

Business Education Courses Contained Within TECH PREP Articulation Agreements. Information contained within Table 6 identifies the Business Education courses that are most frequently included within existing agreements. Keyboarding is included in 64 school systems' agreements—approximately 71%. Fifty of the school systems with an existing agreement—approximately 55%—include Computerized Accounting 1 in their agreements. Forty-four of the school systems with an existing agreement—approximately 49%—include Computer Applications 1 within their agreements. Thirty-nine of the school systems with an existing agreement—approximately 43%—include Computer Applications 2 within their agreements. Advanced Keyboarding/Document Production is contained within 38 of the school systems' agreements—approximately 42%.

Small Business/Entrepreneurship is included in 31 of the school systems' agreements—approximately 34%. Thirty of the school systems reported—approximately 33%—that their agreements include Office Procedures 1. Principles of Business is included within 26 of the school systems' agreements—approximately 29%. Twenty-three of the school systems' agreements—approximately 26%—include Office Procedures 2. Twenty-one of the school systems—approximately 23%—report that Business Law exists in their agreements. Twenty of the school systems—approximately 22%—articulate Business Computer Technology. Exploring Business and Marketing is a part of 19 school systems' agreements—approximately 21%. Seventeen of the school systems—approximately 19%—include Financial Management 1 and Business Management in their agreements. Shorthand is included within 15 of the school systems' agreements—approximately 17%. Eight additional courses—Financial Management 2, Banking/Finance, Business Computer Programming, Computerized Accounting 2, and Business Communications—received minimal responses from responding school systems, which indicate that these eight courses are not frequently articulated.

Table 5
How Students Receive Credit or Placement in an Articulation Agreement

Type of Agreement	Number of School Systems	Percentage of School Systems
College Credit is Awarded Upon Completion of an Exam Only	21	25%
College Credit is Awarded Upon Completion of an Exam and by Other Means of Receiving Credit or Placement, for Courses Taken, Upon Entry at the Other Educational Agency	30	36%
Students Receive Advanced Placement in a Higher Level Course and are Awarded College Credit Only	10	12%
Students Receive Advanced Placement in a Higher Level Course, Awarded College Credit in Conjunction with Receiving Credit or Placement Upon Entry at the Other Educational Agency	19	23%
Students are Advanced Placed in Higher Level Course and not Awarded College Credit	8	10%
Students Receive Credit or Advance Placement if a Predetermined Grade is Earned in the High School Course	11	13%

Discussion

As the State of North Carolina was a pioneer in the TECH PREP movement, the majority of the school systems within in the state should have TECH PREP Articulation Agreements. Thus, the findings of this study support this idea that a majority of school systems within North Carolina have existing TECH PREP Articulation Agreements. Based upon the school systems that responded to the survey, agreements currently exist or will exist in all but a few North Carolina school systems.

The essential element of a TECH PREP educational program is the articulation agreement. Most articulation agreements are between high schools and public, technical, or junior colleges only. This is understandable considering that community/tech

Table 6
Courses Included Most Frequently Within Tech Prep Articulation Agreements

Course	Number of School Systems	Percentage of School Systems
Keyboarding	64	71%
Computerized Accounting 1	50	55%
Computer Applications 1	44	49%
Computer Applications 2	39	43%
Adv. Key. Document. Production	38	42%
Computerized Accounting 2	37	41%
Small Bus. Entrepreneurship	31	34%
Office Procedures 1	27	30%
Principles of Business	26	29%
Office Procedures 2	23	26%
Business Law	21	23%
Business Computer Technology	20	22%
Exploring Business and Marketing	9	21%
Financial Management	17	19%
Business Management	17	19%
Shorthand	15	17%

nical colleges proliferate North Carolina. Currently, 58 different public community colleges and/or technical institutes exist in North Carolina. Many of these 58 institutions have branch campuses and instructional sites. Also, agreements are most often between secondary school systems and with associate-degree granting institutions—two-year colleges. It is surprising that the involvement of North Carolina public four-year colleges/universities in agreements is virtually nonexistent.

Nearly all North Carolina high school TECH PREP students have the opportunity to receive credit or advanced placement at another educational agency for courses completed at the high school level. The specific arrangements for determining how the credit or advanced placement will be awarded is contained within the TECH PREP Articulation Agreements. A majority of the existing agreements stipulate that students will receive college credit upon completion of the articulating postsecondary educational agency's exam.

Requiring successful completion of an exam to receive credit may indicate that agreements are negotiated by administrative/admission personnel and not are constructed by faculty. Faculty at both the secondary school level and the postsecondary level would probably articulate course content and a means of measuring proficiency of that content within the high school course. It may also reveal a lack of trust between secondary faculty and postsecondary faculty as to the rigor of the high school curriculum and the worthiness of a non-college preparatory high school curriculum being considered as college parallel. A few agreements do permit students to receive advanced placement in a higher level class and to be awarded college credit. Those agreements which allow credit or advanced placement based upon coursework completed at the secondary level is representative of "pure" demonstrated curriculum proficiency articulation. Agreements of this type are most worthy of modeling.

It is interesting to note that one method of receiving credit or advanced placement was "written in" by a large number of school systems that responded to the survey. With a relatively high number of "write in" comments was the practice of "the awarding of college credit and advanced placement granted by most colleges with the condition that a student must earn a predetermined grade in the high school course." Again, this practice is more "administrative" driven than it is curriculum content articulation.

According to the respondents to this instrument, two major methods were used to award credit upon entry at the postsecondary educational agency. The two methods were: (1) college credit is awarded upon completion of the educational agency's exam and (2) advanced placement in a higher level class with college credit for the previous coursework completed at a secondary educational agency being contingent upon satisfactory completion of the higher-level course at the postsecondary institution. None of the vocational education directors surveyed reported that unconditional college credit was awarded.

Many business courses are included in TECH PREP Articulation Agreements. Classes using a keyboard for document production and classes using the computer for business and accounting applications are the courses most often included in TECH PREP Articulation Agreements. To a lesser extent, basic business courses are also included in articulation agreements. The pattern in agreements is to include psychomotor skill-level courses and courses of a low-cognitive level. It appears that both secondary and postsecondary institutions are offering the same skill-level courses and low-level cognitive courses, thereby duplicating course offerings.

The most common Business Education courses that appeared in the agreements were "skills" courses—keyboarding, accounting, and computer applications. It is interesting that 13% of the vocational education directors who responded indicated that Shorthand was currently offered, and those vocational directors also indicated that Shorthand was included in their TECH PREP Articulation Agreements. Further, courses that may require some creativity by the students were not included in the TECH PREP Articulation Agreements.

Interestingly, courses requiring higher-level cognitive skills are least likely to appear in TECH PREP Articulation Agreements. These courses in the secondary schools probably are perceived by postsecondary administrators as lacking the academic rigor found in similar postsecondary courses. Or, is it that colleges are unwilling to accept that these courses taught in the high schools are college parallel?

Conclusion

TECH PREP Articulation Agreements are currently functioning in a majority of the school systems in North Carolina. How-

ever, a pattern does not exist in the operation of each agreement. Yet, one common theme does emerge—courses included within the agreements are along traditional discipline content lines. Agreements for Business Education courses revolve around the skills courses while Marketing Education courses are concerned with business principles and practices. Based upon this preliminary analysis, one question still remains—will TECH PREP programs as they currently exist in North Carolina assist in providing a workforce that is better prepared for the 21st century and beyond?

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A Comparison of Two Teaching Methods on Acquisition of Keyboarding Skills By Elementary Students

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Abstract

The purpose of this experimental study was to determine the effectiveness of self-paced and group-paced instruction on the achievement of keyboarding skills of third graders and the relationship between student achievement in keyboarding skills and manual dexterity. The study also sought to describe the attitudes of elementary students toward computers. Three instruments were used: Flanagan Tapping Test (dexterity), pre and post one-minute timed writing test (keyboarding), and a researcher-designed questionnaire (attitudes).

Purpose/Objectives

The purpose of this study was to compare the effectiveness of self-paced instruction and group-paced instruction on the achievement in basic keyboarding skills of above average third grade students. The study also sought to describe the attitudes of elementary students toward computers and the relationship between student achievement in basic keyboarding skills and manual dexterity as measured by the Flanagan Tapping Test.

Specific objectives of the study included the following:

1. determine the effectiveness of self-paced instruction as measured by gains in achievement in timed writings.
2. determine the effectiveness of group-paced instruction as measured by gains in achievement in timed writings.
3. compare the effectiveness of self-paced and group-paced instruction as measured by achievement on a post-timed writing test.
4. describe the attitudes toward computers prior to the instruction.
5. describe the attitudes toward computers after the instruction.
6. determine the changes in attitudes toward computers as measured by differences in pre and post attitudinal measures.
7. determine the manual dexterity of students as measured by the Flanagan Tapping Test.
8. determine the relationship between manual dexterity of students and their performance on the timed writing tests (pre and post)
9. compare male and female students on the following selected measures:
   a) post-timed writings;
   b) manual dexterity as measured by the Flanagan Tapping Test; and
   c) attitudes toward computers.

Methodology

Population and Sample

The target population of the study was above average third grade student. The accessible population included above average third grade students at one elementary school. The sampling procedure used involved first identifying above average students. This was defined as the top one third of students in the third grade class as measured by scores on the SRA achievement test. When these students were identified, the top 20 were selected for inclusion in the study, and permission forms were sent to their parents requesting that they participate in the study. A total of 17 approved permission forms were returned. To complete the research sample, the first three alternates were selected and re-

quested to participate. These three granted permission. The 20 students were then randomly assigned to two groups and the groups were randomly assigned to the levels of the treatment (self-paced and grouped-paced instruction).

Instrumentation

Three instruments were used to collect data in the study. The first was the Flanagan Tapping Test. This instrument was used to measure the manual dexterity of the students in the study. The second instrument was a one-minute timed writing test which was used to measure the achievement in keyboarding. This instrument was administered as both a pre- and post-test. The third instrument in the study was a researcher-designed questionnaire which was used to measure the students' attitudes toward computers. The gender of subject was also recorded on this form. This attitude instrument was also administered as both a pre- and post-survey.

Treatments

Class sessions were held after school twice a week for one and one-half hours per day for three weeks. Each group received a total of 270 minutes of instruction and 270 minutes of computer lab. Two teachers (one elementary and one business) rotated among the groups during each week. Each teacher taught each of the groups three times during the course of the study.

Both groups were taught proper technique, and they were introduced to the home row keys during the first session. The students were introduced to an average of four new keys per session. In the group-paced level of the treatment, the students were directed through activities and exercises as a group. The teacher designed the instruction to keep the students moving through the instructional material together and at a relatively consistent pace. In the self-paced group, the amount of group presentation of information was minimized, and the students were encouraged to work at their own pace. The teacher acted mostly as a facilitator, and when students were ready to move to another activity or concept they were allowed and assisted in doing so.

Collection of Data

Data for this study was collected through the use of tests and a questionnaire/survey. On the first day, the sex of the students was recorded for comparison of achievement, attitude, and manual dexterity. Also on the first day, the students in both groups were administered the Flanagan Tapping Test, the attitude questionnaire, and a one minute timed writing test. After the completion of the course, a one minute timed writing test and the same attitude questionnaire were administered as a post test to both groups of students. The Flanagan Tapping Test was administered only at the beginning of the study.

Analysis and Interpretation of Data

The data analyzed in this study was collected from 20 above average third graders, 10 of which received each level of the treatment. For objective one (measure the effectiveness of self-paced instruction), the mean scores were calculated for the pre- and post timed writings and no significant difference was found between the two measures ($p > .05$). For objective two (group-paced instruction), the mean pre-timed writing score was 4.8 and the mean post-timed writing score was 5.9. The t-test procedure revealed that there was a significant difference between these two measurements ($t_{(9)} = 2.18$, $p = .05$). Objective three was to compare self-paced and group-paced instruction using post-timed writing. Since some difference did exist, although nonsignificant, in the pre-timed and the Flanagan's Tapping Test scores of the treatment groups, these scores were controlled for statistically using the analysis of covariance procedure. When controlling for pre-timed writing and Flanagan Tapping Test scores, findings from the ANCOVA revealed that no significant differences existed between the treatment groups.

Objectives 4, 5, and 6 dealt with attitudes toward computers. Percentage of the responses were reported separately for the pre-attitude survey and for the post-attitude survey. The questions dealt with the following: whether they had a computer at home, whether they had used the computer for games, whether they had used the computer for homework, whether they had used the computer for other purposes besides games and homework, whether they were scared of using a computer, whether they felt they could operate computer, whether they knew what a typewriter was, whether they had used a typewriter at home, and whether they would like to take more classes using the computer. Areas where a change was found from pre- to post-measurements included: More students indicated on the post-measurement that they had used the computer to complete homework assignments; less students indicated on the post-measurement that they were scared that they would break the computer if they used it, that they didn't understand the computer, and that they didn't know how to turn the computer on. In addition, 75% of the students in the study indicated on the post-measurement that they would like to take more classes using the computer.

Objective 7 was to measure the manual dexterity levels of the students using the Flanagan Tapping Test. The mean was 25.9 (standard deviation = 8.78) and range in scores was from 13 to 42.

Objective 8 was to determine the relationship between the manual dexterity of students and their performance on timed writing tests. The manual dexterity of students was not found to be related to the post-timed writing test of students ($r = .27$, $p = .26$). However, when the relationship between dexterity and pre-

timed writing test performance was examined, a significant positive correlation was discovered ($r = .47$, $p = .03$). This correlation indicates that students with higher scores on the Flanagan Tapping Test tended to score higher on the pre-timed writing test.

Objective 9 was to compare male and female students on post-timed writing, manual dexterity, and attitudes. The mean pre-timed writings scores were 5.7 for males and 4.9 for females. On the post-timed writings, the scores were 5.6 for males and 5.8 for females. There was no significant difference in either of these measures. The mean dexterity levels for males was 22.9 (standard deviation = 9.2); for females the mean was 27.5 (standard deviation = 8.5). This difference was not found to be significantly different at the .05 level. When comparing attitudes, 71 percent of the males and 92 of the females on the pre-survey said they were not scared of using a computer. On the post-survey, 100% (7) of the males and 77% (17) of the females said they were not scared of using a computer. On the pre-survey, 100% of the males and 92% (12) of the females said they felt they could operate the computer. When comparing males and females on the post-attitude survey, 100% in both groups said they felt that they could operate the computer. On the post-attitude survey, 86% (6) of the males and 69% (9) of the females said they would like to take more classes using the computer.

Conclusions and Recommendations

An experimental method of research was used to determine the effectiveness of self-paced and group-paced instruction on the achievement of basic keyboarding skills of third graders. From the analysis of the data obtained from the 20 above-average third graders led to the following conclusions: (1) Self-paced instruction was not effective in increasing the achievement levels of the students. (2) Group-paced instruction was not effective in increasing the achievement level of students. (3) Most of the students had used a computer at home. (4) Most of the students were not scared of using a computer. (5) At the end of the keyboarding course, all students felt they could operate a computer. (7) Most of the students would like to take more classes using the computer. More males were interested in other classes than were females. (8) More females than males were afraid of using the computer. (9) There was a positive relationship between manual dexterity and students' performance on the pre-timed writing test.

Based upon the analysis of the data obtained from the students, the findings presented, and the conclusions reached, the following recommendations are made: (1) More research using more than one school, different grade levels, and differing abilities. (2) The group-paced instruction should be used since it showed an increase in achievement, while the self-paced group did not. (3) Computers should be utilized in all disciplines to assist and enhance instruction since most of the students were interested in taking more classes using the computer.

Determining Business Educators' Inservice Training Needs for Teaching Accounting at the Secondary Level

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Abstract

Business teachers were surveyed to determine their inservice training needs for improving accounting instruction. The study also identified teachers' preferences for inservice training and the factors influencing participation in inservice programs. The findings indicate that the most important training needs were making the accounting course more relevant to the needs of employers, keeping updated with accounting content, and integrating computers and other instructional technology into the accounting course. Teachers expressed a preference for training offered in one day or one to three days seminar format and sponsored by universities or community colleges. They also mentioned release time and reimbursement of expenses by employer as factors most likely to influence their participation in inservice programs.

Introduction

Rapid changes in technology and the business environment require a broader array of skills for today's business students. In the area of accounting, there is an increasing emphasis on critical thinking and interpersonal skills. The American Accounting Association (1986), in its report on the state of the discipline, recommended greater emphasis on problem solving and communication skills. Employers have also identified communication, intellectual, interpersonal, and computer skills as critical for success in the business world.

At the post-secondary level, changes are already taking place to make accounting education more relevant to the needs of the students and the profession. Several universities and community colleges are moving away from the lecture-textbook oriented course to new approaches which develop critical thinking and teamwork skills. Students are learning how to reason in context rather than practicing the application of rules. According to Hellmutt (1990), the first semester college accounting course has broad objectives which include the procedural aspects as well as the conceptual basis needed by the student.

At the secondary level, similar changes are also needed in the accounting course, to provide students with an adequate background for employment and further education. Although business recordkeeping methods and procedures have changed in recent years, high school accounting has not, except for the introduction of computers into the curriculum (Hellmutt, 1990, Getter & Gilbertson, 1992, and Whitney, 1992). Business teachers have the greatest responsibility for making the high school course more relevant and interesting for students. However, the teachers themselves need to be updated on the changes in technology and business practices. One strategy for providing professional development activities for teachers is inservice training.

Several business educators have noted the importance of inservice training as a critical part of the professional development of teachers. According to Wiedegreen (1992) and Ryoland (1976), inservice training helps teachers continue to grow professionally and remain abreast of innovations in business. It helps maintain current knowledge about changing requirements for employers and changes in practices and procedures resulting from improved technology. The Policies Commission for Business and Economic Education (1975) in "This We Believe About Professionalism in Business Education" called on the profession to require continuous effort to extend and validate content and methodology in the field, and to demonstrate a commitment to continuous study.

Although the literature contains numerous articles dealing with inservice education, very few studies were found dealing with inservice training needs of business teachers. Wray (1990) investigated the inservice education needs of Illinois secondary Marketing Education Teachers. Wiedegreen (1992) identified the professional development needs of members of the Virginia Business Education Association. Faulkner (1990) examined the inservice education needs of part-time business faculty. Loney (1986) conducted an assessment of the professional development needs of marketing education and office education inservice education teachers in North Dakota.

Only one study was found dealing with the inservice education needs of accounting teachers. Peterson (1986) conducted an assessment of perceived needs and inservice training preferences of full-time accounting, data processing, and economics faculty in the Michigan public community colleges.

No studies were found dealing with inservice training needs related to teaching accounting at the secondary level. However, if business teachers are to improve their accounting programs and

their teaching, they must update their competencies. Inservice training, therefore, must be designed to fit the needs of teachers.

Purpose

The study was designed to:

1. Identify and analyze high school business teachers' perceived inservice training needs related to teaching accounting.
2. Examine the effect of age, gender, teaching experience, accounting work experience, and level of education on teachers' inservice training needs.
3. Identify business teachers' preferences for inservice training.
4. Examine the factors contributing to participation in inservice training.

Methodology

The population of the study was high school business teachers who teach accounting in a Midwestern state. A table of random numbers was used to select a sample of 300 schools from a list provided by the State Board of Education. The questionnaire developed as part of the study collected information on: demographic characteristics, inservice training needs, inservice training preferences, and factors contributing to participation in inservice training. A panel of experts reviewed the items for content validity. The questionnaire was then pilot tested and revised based on the results of the pilot study. The revised questionnaire and cover letters were mailed to the school principals who were asked to pass them on to the accounting teachers. Of the 300 questionnaires mailed, 161 were returned for a response rate of 53.7%

Data were analyzed using percentages, means, standard deviations, and multiple regression statistics.

Findings

The results of the study are presented in two (2) sections. Part one describes the demographic characteristics of the teachers. Part two presents the results of the data analysis for the research questions.

Demographic Information

Most of the teachers sampled were females with master's degrees. The majority (over 75%) were between 35 and 54 years old. Sixty percent of the teachers have been teaching accounting for over 16 years. However, few have accounting work experience. Thirty-seven percent have less than 5 years accounting experience and 48 percent have never worked in the accounting field. Seventy percent of the teachers indicated that they had attended an inservice training activity in the last three years. These activities included state business education conferences, automated accounting workshops, computer or accounting classes, integrating academics into business education workshops, and vendor training seminars.

Inservice Training Needs

Question 1 asked accounting teachers to indicate the areas in which they need inservice training. A mean of 3.0 or more indicated an area in which inservice training is needed. Results are presented in the following three tables. The areas of greatest need, as shown in Table 1, are instructional methods, planning instruction, and evaluating instruction. The area in which teachers have the least need for training is classroom management. A plausible explanation for this finding is that most teachers are very experienced and might have devised their own methods for dealing with discipline and other classroom problems.

Table 1
High School Accounting Teachers' Perceptions of Inservice Training Needs (N=161)

Areas	Means	S.D.
Instructional Methods	3.85	9.15
Planning and Instruction	3.41	6.94
Evaluating Instruction	3.00	6.63
Communication Skills	2.96	6.19
Classroom Management	2.57	4.00

Specific topics perceived as most important and least important training needs are presented in Table 2. Of the 41 topics, accounting teachers indicated a need for training in 23 (mean of 3 or more). The three areas rated as the most important training needs are: making the accounting course more relevant to employers' needs, keeping updated with accounting content, and using computers in accounting. The least important training needs are: handling discipline problems and planning and preparing lessons.

Demographic Variables and Inservice Training Needs

The results of the multiple regression analysis (Table 3) show no significant relationship between demographic variables and accounting teachers' perceived inservice training needs. The F value, $F(5,150) = 1.34$, is not significant at the $P<.05$ level. Demographic characteristics accounted for four percent of the variance ($R^2=.04$). An examination of the relative importance of each variable also showed that none of the betas and t values was significant at the $P<.05$ level. There were, however, negative relationships between teaching experience and perceived inservice training needs, and between age and perceived inservice training needs.

Table 2
High School Accounting Teachers' Perceptions of Most Important and Least Important Inservice Training Needs (N=161)

Topics	Means	S.D.
Most Important Training Needs		
Making course relevant to employers' needs	4.24	.80
Keeping updated with subject matter	4.17	.88
Using computers in accounting	4.12	1.09
Using other new instructional technology	4.08	.89
Using innovative teaching methods	3.97	.96
Developing school-business partnerships	3.96	.97
Identifying teaching/learning resources	3.96	.93
Using muti-media technology	3.91	1.03
Articulation with college accounting program	3.89	1.01
Problem solving and decision making	3.88	.98
Making course relevant to college accounting	3.87	1.01
Including critical thinking and interpersonal skills	3.84	.98
Motivating students	3.72	1.15
Promoting accounting course to students	3.58	1.20
Evaluating accounting software	3.54	1.24
Integrating communication skills in accounting	3.54	1.03
Least Important Training Needs		
Handling discipline problems	2.16	1.15
Planning and preparing lessons	2.55	1.21
Dealing with cheating	2.59	1.27
Writing objectives	2.66	1.20
Developing human relations skills	2.70	1.15
Catering to individual differences	2.71	1.16
Teaching students from diverse backgrounds	2.73	1.20
Using and maintaining electronic gradebooks	2.74	1.36
Providing remedial activities	2.82	1.18
Developing units of instruction	2.94	1.28

Table 3
Regression Table for Demographic Variables on Accounting Teachers' Perceived Inserved Training Needs

Source	df	Sums of Squares	Means	F	R^2	P>F
Regression (Model)	5	4388.66	877.73	1.34	.04	.25
Residual (Error)	150	97668.65	651.12			
Total	155	102057.31				

Inservice Training Preferences

Question 2 asked accounting teachers about their preferences regarding time and sponsorship of inservice training. Table 4 displays a ranking of teachers' preferred time for attending inservice training. The majority of teachers preferred one day or one to three days sessions. The time least preferred by teachers was one to two weeks residential workshops.

Table 4
Rank Order of High School Accounting Teachers' Preferred Times for Inservice Training

Preferred Time	Mean	S.D.
One-day seminar	1.32	.67
One to three days	2.05	.77
Week-end seminars	2.95	1.00
One week residendtial workshop	3.47	.84
One to two weeks residential workshop	4.27	1.09

As shown in Table 5, accounting teachers prefer to attend inservice training sponsored by universities or community colleges. Textbook publishers sponsored inservice training was least preferred.

Table 5
Rank Order of High School Accounting Teachers' Preferred Sponsor for Inservice Training

Sponsor	Means	S.D.
Universities	1.99	1.07
Community Colleges	2.30	1.06
Professional Organizations	2.36	1.04
Textbook Publishers	2.96	1.16

Factors Contributing to Attending Inservice Training

Question 3 addressed the factors which will contribute to teachers attending inservice training programs. As shown in Table 6, release time by employer (77%), expenses reimbursed by employer (76%), and university credit (51%) are the three factors most likely to encourage teachers to attend inservice training.

Table 6
Factors Contributing to High School Accounting Teachers' Participation in Inservice Training

Factors	Number	Percentage
Release time	124	77
Reimbursed Expenses	123	76
University credit	83	51
Offered during summer	72	44
Credit towards promotion/tenure	69	43
Offered during weekends	31	19
Offered during evenings	31	19

N.B. Number and percentages do not add up to 161 and 100 respectively, because teachers marked all that applied.

Conclusion and Discussion

The following conclusions are based on the findings of the study.

1. The most important inservice training needs of high school accounting teachers are instructional methods and planning instruction. Specifically, training is most needed in such topics as: strategies for making the accounting course more relevant to employers' needs, accounting content update (for example, taxes, depreciation, inventory, adjusting and closing entries), and techniques for integrating computers and other instructional technology in the accounting classroom.

   The underlying theme of this conclusion is "change". Inservice training programs, if they are to meet the needs of accounting teachers must deal with identifying, developing, and sharing innovative teaching materials and methods, and selecting and using instructional technologies. This theme is consistent with the changes called for by the American Accounting Association, and currently being implemented in post secondary accounting education (1986). Graham's (1993) study about how to make accounting more relevant to the 1990s also had similar results. He concluded that high school accounting programs should be updated to include more computer applications, teamwork, and critical thinking and communication skills.

   The question, therefore, is: Are business teachers inservice training needs for teaching accounting different from their needs for teaching other business subjects? Probably not. A study of inservice training needs of Illinois marketing education teachers (Wray, 1990) found promoting the marketing program and keeping abreast with developments in subject matter as the most important training needs. Similar studies conducted on the national level also found keeping abreast with technology, updating technical skills, and human relations as the areas of greatest needs for professional development (Hartley, Brookhart,and Smith,1990; Thomas, Haskell,and McNelly 1989).

2. Demographic variables (age, level of education, gender, years of accounting teaching experience, and years of accounting work experience) did not significantly influence the teachers' views of their inservice training needs.

   Collectively demographics accounted for only 4% of the variance. Individually, their effect was also minimal, because none of the t values was significant at the $p<.05$ level. However, the negative effect for teaching experience supports the view that the more experienced teachers tend to be less interested in learning new methods or technology through inservice training.

3. Accounting teachers prefer to attend inservice training offered in one or one to three days workshop format.

   This is not surprising. Teachers most likely to attend inservice training programs are in their 30s and 40s and probably have family and professional obligations. Findings from Peterson (1986) study supports this conclusion.

4. Inservice training programs sponsored by universities and community colleges are more likely to be well attended.

   Teachers are indicating a preference for interaction with colleagues from higher education rather than the regular school district sponsored training. This preference could be related to the perception that university and community college teachers are more up-to-date with the subject matter and technology. University and community college sponsored training are also likely to be more challenging, and therefore more beneficial.

5. Release time and employer reimbursement of expenses are very effective incentives for encouraging participation in inservice training.

   Employers do have a stake in the continuing education of teachers. Business educators planning inservice training need to work closely with universities, community colleges, state boards of education, and school boards to provide the needed incentives and inservice training for accounting teachers.

Recommendations

Based on the findings and conclusions of the study, the following recommendations are offered.

Further research should be conducted to:

1. Investigate inservice/continuing education programs (including formats, sponsors, incentives) for improving the teaching of accounting at the secondary level.

2. Compare the inservice training needs of accounting teachers at the secondary and postsecondary levels.

3. Identify the competencies needed for entry level accounting jobs and the extent to which high school accounting teachers need inservice training in each competency.

4. Investigate variables that might affect inservice training needs e.g. school resources, location and size of school, involvement in tech prep and school business partnerships, involvement in articulation programs with community colleges and universities, among others.

Business educators and professionals involve in planning inservice training programs should develop linkages with:

1. Professional accounting organizations and Accounting Teachers Associations to get access to innovative teaching materials and methods.

2. Community college and university professors, and accounting practitioners to assist in programs to update teachers in accounting content.

3. Businesses and accounting practitioners to help teachers identify the needs of businesses.

4. Textbook publishers and software manufactures to keep teachers updated about new technology in the accounting field.

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ELM in the Academy: How Is It Being Used for Administrative Communication?

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Abstract

This research project was conducted to determine the extent to which and the purposes for which administrators, faculty, and staff at a comprehensive four-year Midwestern university used electronic mail to communicate with middle-level campus managers. Electronic mail messages sent to deans, directors, and department heads through the "ddd" alias were analyzed. Results indicate that administrators direct electronic mail messages through "ddd" more frequently than faculty but less frequently than staff and that messages related to policies or procedures are seldom sent through the "ddd" alias.

Introduction

It is generally agreed that the greatest changes in the environment and activities of the offices of organizations have been related to the introduction of the computer (Uhlig, 1977). Through word processors and other types of software, the computer allows for easy creation of, storage of, and access to information. Among its greatest effects may be the impact the computer has had on the way in which information is disseminated (Hunter & Allen, 1992) and its contribution to a cultural transformation that is profoundly influencing human communication (Caporael, 1984).

Some suggest that no other form of information technology stands to impact the user community, and ultimately the organization, more than computer-mediated communication (CMC) because it allows managers to reshape and redirect their most time-consuming activity--communication (Adams, Todd & Nelson, 1993). CMC may be categorized into three types: [a] chatting (also called talk, phone, messages, and computer conferencing), [b] electronic bulletin boards, and [c] electronic mail (McCormick & McCormick, 1992). Because it makes it possible to disseminate information easily and quickly, electronic mail has become one of the most accepted and frequently used CMC activities in today's office environment.

Although they may be identified and described in different terms, it is generally agreed that electronic mail offers five essential advantages over traditional communication modes: an overall cost reduction, reduced paper handling, faster communications, improved communication effectiveness, and integration of data communication with records management (D'Souza, 1992). Network managers have identified electronic mail as a resource at their fingertips that "can help them meet their organizations' strategic goals" as they carry out their work in organizations operating in an increasingly competitive business environment requiring increased efficiency and getting the most from existing resources (Rastellini, 1992).

Because of the rapidly increasing level of purchase, installation, and use of technology in the office, public access areas, and homes, no one knows how many people are actually using electronic mail today nor how many e-mail messages are being sent. However, estimates of the numbers involved are readily available. In 1992, it was estimated that 20 million people across the United States were using electronic mail and that more than half of those users had gone on-line since 1991 (Daily Labor Report, 1992). More recently it has been reported that between 25 and 30 million U.S. workers will have an e-mail password by the end of 1994 (Gunther, 1994). Put in another perspective, it was recently reported that Americans now possess 148.6 million e-mail addresses, cellular phones, pagers, fax machines, voice mailboxes, and answering machines--up 365 percent from 40.7 million in 1987 and, more specifically, that the number of U.S. e-mail addresses has increased by more than 27 million since 1987 (Tetzeli, 1994).

Gunther (1994) reports that Wired magazine recently estimated "business users sent 5 to 6 billion e-mail messages in 1993, the equivalent of 10,000 manuscripts the length of 'War and Peace' each day." More broadly, LAN Times reported that e-mail message volume exceeded 10 billion messages in 1993, and it is estimated the number of such messages will reach 18 billion in 1994 and 43 billion in 1996 (Creswell, 1994). As is true for the national debt and U.S. economic activity in general, the accuracy of the numbers reported for various aspects of electronic mail may be questioned and the magnitude is difficult for most people to comprehend. However, the rapidity of the increase in volume and number of users and the fact that the numbers for both messages and users are large is certainly not questioned.

Based on findings from a study completed by Robert Kraut, a professor of social psychology and human-computer interaction at Carnegie Mellon University, e-mail users appear to be better informed than their colleagues who don't check computer messages as often. E-mail users are more in the loop regarding organizational activities even when the e-mail network is not

used for formal announcements in an organization. Further, employees who join e-mail conferences are generally more likely to participate in the e-mail discussions than they would in face-to-face communications. Superiors are less intimidating in the e-mail setting (Baig, 1994).

Electronic mail has become a backbone of organizational communication because of the proliferation of microcomputers, the improving cost-benefit ratios for transmitting information electronically, a growing awareness of its benefits to all levels of personnel, and increasing user acceptance and understanding of its applications. While electronic mail was gaining widespread acceptance as a communications and dissemination tool in business settings, until recently its use in the academic environment was primarily for faculty communication with off-campus research colleagues and facilities. However, industry analysts predict a rapid growth in the acceptance and application of electronic mail in the academic community during the 1990's (D'Souza, P.V., 1992). Frand and Ng (1994) state that "the use of electronic mail for business school communication is an 'old,' well established technology," which was first introduced in the late 1960s and is currently in active use at 80 percent of the 352 schools responding to their 1994 UCLA survey of business school computer usage. As it becomes a mainstay of campus technology systems, it is important to determine how electronic mail is currently being used to support and enhance campus communications.

Purpose

The purpose of this research project is to determine the extent to which and the purposes for which administrators, faculty, and staff at a comprehensive, 4-year Midwestern university use electronic mail as a method for communicating with a group of middle-level campus managers. A mailing list alias technically and commonly referred to as "ddd" was initially set up to include an electronic mail address for each dean, department head, and director on campus--thus, the "ddd" alias.

Specifically, the research will focus on the following propositions:

1. Administrators use the "ddd" alias more frequently than faculty or staff.
2. The "ddd" alias is used more for policy/procedure messages than for other messages.
3. More "ddd" electronic mail is sent during regular work hours than is sent during non-work hours.
4. Electronic mail addressed to the "ddd" is short (10 or fewer lines) more frequently than it is long (over 10 lines).
5. More "ddd" electronic mail messages are sent without copies than are sent with copies.
6. More "ddd" messages use the imbedded (default) memo format of electronic mail than replace it with another format or replicate the standard memo format.
7. Policy/Procedure messages sent through the electronic mail "ddd" are longer, on average, than other messages.
8. The "ddd" alias is used more frequently for one-time messages than for routine/repetitive messages.
9. Staff members use more electronic mail enhancement features than do administrators or faculty members.

Procedures

All electronic mail messages distributed through the "ddd" alias for the spring quarter of the 1993-94 academic year (March 6 through May 21) were printed and saved by one of the authors who is included on the alias. The study period includes 10 weeks of classes and 1 week of exams. The following descriptive information was recorded for each message:

1. Month
2. Day of Week
3. Date in Month
4. Time of Day
5. Copy Notation
6. Number of Text Lines
7. Number of Non-text Lines
8. Enhancement Features
9. Format
10. Originator's Classification
11. Topic
12. Frequency

A total of 204 messages were collected and coded for the term, and descriptive statistics were generated using a standard SPSS package.

Findings

These findings report the results of analysis of 204 electronic messages distributed through the "ddd" alias during the academic quarter beginning March 6, 1994, and ending May 21, 1994.

General Findings

One of the initial activities in this project was to request a listing of the addresses comprising the "ddd" alias. A review of the 139 addresses in the alias indicated all deans, department heads, and directors were included, either as a unit or personal name address. Both a unit name and the personal name address for the dean, department head, or director were included for some units. There were 17 personal name addresses on the list for

individuals who were not deans, department heads, or directors. The number of addresses for a unit ranged from one to seven.

The number of messages sent during a week ranged from 12 during week 11 of the study period to 24 during weeks 1 and 6; the average number of messages sent during a week was 18.5. Message activity was greatest on Monday (53) and least on Wednesday (27). One message was sent on a weekend, and one was sent on an official University holiday. Message activity was greater during the first part of the quarter than during the last part of the quarter. The number of messages sent through "ddd" exceeded the average during four of the first five weeks during which classes were taught and fell beneath the average in four of the last five weeks during which classes were taught; the number of messages was also below the average during final exam week.

Support staff were the most frequent message senders; this group accounted for 51.5 percent of the messages sent through the "ddd" alias. Deans and top-level campus administrators (those whose titles include the word "chancellor") were the most infrequent users (2.5 and 3.4 percent respectively). Approximately 11 percent of the messages were sent under the name of a department and could not, therefore, be attributed to any specific group of authors.

Findings Related to Propositions

For simplicity and cohesiveness, findings directly related to the nine propositions that formed the basis for the study are presented in the following format in the next sections: proposition, descriptive statistics, statement regarding whether the data support the proposition.

Proposition 1: Administrators use the "ddd" alias more frequently than faculty or staff.

For the purpose of this study, individuals who hold positions with the titles chancellor, vice chancellor, assistant/associate vice chancellor, dean, or director were classified as *administrators*. Because the Minnesota Public Employee Relations Act specifies that academic department heads are not administrators, they and others who teach were classified as *faculty*. All other employees, including non-academic unit department heads, were classified as *support staff*.

As shown in Table 1, the majority of messages sent through the "ddd" alias are sent by staff members.

Findings indicate that Proposition 1 must be supported with respect to faculty but cannot be supported with respect to staff. Although the usage differences among the three groups are sizeable, they are not statistically significant.

Table 1
Electronic Message Sources
N=181*

Group	Frequency	Percent	Cum Percent
Administrators	53	29.3	29.3
Faculty	17	9.4	38.7
Staff	111	61.3	100.0

*23 messages sent from departments were excluded.

Proposition 2: The "ddd" alias is used more for policy/procedure messages than for other messages.

The 10 topic categories identified for messages analyzed in this study are shown in Table 2. Announcements and general information messages accounted for three-fourths of the "ddd" distributions.

Table 2
Message Topics
N=204

Topic	Frequency	Percent	Cum Percent
Event Announcements	76	37.3	37.3
Other Announcements	57	27.9	65.2
General Information*	21	10.3	75.5
Requests	16	7.8	83.3
Minutes of Meetings	10	4.9	88.2
Items for Sale	10	4.9	93.1
Policies	5	2.5	95.5
Closures/Cancellations	4	2.0	97.5
Procedures	3	1.5	99.0
Other	2	1.0	100.0

*General information includes items such as updates on a faculty member who received a heart transplant, updates on a 150-mile scholarship run, and reminders of deadlines.

Messages related to policies and procedures account for only 4 percent of the total; therefore, Proposition 2 cannot be supported.

Proposition 3: More "ddd" electronic mail is sent during regular work hours than is sent during non-work hours.

Regular hours for the campus are 8 a.m. to 4:30 p.m. Monday through Friday. Only two messages were sent during non-work days--one on a Saturday, the other on an official University holiday. The message sent on Saturday was initiated by a faculty member; the message sent on the holiday was initiated by an administrator. Table 3 illustrates the time distribution of the 202 messages sent during typical work days.

Table 3
Times at Which Messages are Sent
N=202

Times	Frequency	Percent	Cum Percent
Before 0800	4	2.0	2.0
0800-1200	101	50.0	52.0
1201-1630	77	38.1	90.1
After 1630	20	9.9	100.0

Over 88 percent of the messages were sent during regular work hours; therefore, Proposition 3 is supported. It is interesting to note that all messages sent before 8 a.m. and 70 percent of those sent after 4:30 p.m. were sent by staff members. The earliest time at which a message was sent was 12:27 a.m.; the latest time at which a message was sent was 10:36 p.m. Both messages were sent by the same staff member.

Proposition 4: Electronic mail addressed to the "ddd" is short (10 or fewer lines) more frequently than it is long (over 10 lines).

Message lengths for documents examined in this study ranged from 1 to 247 lines; the mean length was 19.1 lines. Although no analyses were performed to determine the average length of each type of message, it was observed that minutes of meetings and two types of announcements (grant funding opportunities and computer purchase options through the bookstore) were the longest message types. It is interesting to note, too, that each of these message types was sent routinely. Table 4 presents information related to the number of messages defined for this study as *short* or *long*.

Table 4
Message Length
N=204

Number of Lines	Frequency	Percent	Cum Percent
10 or fewer	118	57.8	57.8
Over 10	86	42.2	100.0

A majority of the electronic mail messages sent to those on the "ddd" list contain 10 or fewer lines; thus, Proposition 4 is supported.

Proposition 5: More "ddd" electronic mail messages are sent without copies than are sent with copies.

The menu generated by the electronic mail system used on this campus includes a "cc:" prompt. Table 5 provides data on the number of message senders who used the feature.

Table 5
Messages Using Copy Notation
N=204

Copy Notation	Frequency	Percent	Cum Percent
Yes	89	43.6	43.6
No	115	56.4	100.0

The fact that more users chose not to use the copy notation than chose to use it means that Proposition 5 must be supported.

The messages that included use of the copy notation were given closer scrutiny. The more detailed analysis revealed that 65 (73 percent) of the messages using the copy notation were copied to the sender.

Proposition 6: More "ddd" messages use the imbedded (default) memo format of electronic mail than replace it with another format or replicate the standard memo format.

The imbedded memo format of the software package used for electronic mail on the campus includes the standard memo headings "Date," "From," "To," and "Subject." The date and user name of the sender are automatically displayed by the software; the name of the receiver and the subject must be keyed by the user. As shown in Table 6, the majority of users minimized keying efforts by using only the imbedded memo format.

Table 6
Use of Imbedded Memo Format
N=204

Used Only the Imbedded Memo Format	Frequency	Percent	Cum Percent
Yes	130	63.7	63.7
No	74	36.3	100.0

Because nearly two-thirds of the users relied exclusively on the imbedded memo format, Proposition 6 is supported.

Proposition 7: Policy/Procedure messages sent through electronic mail "ddd" are longer, on average, than other messages.

As reported earlier in this section, only 5 items classed as Policies and only 3 items classed as Procedures were distributed during the study period. Specific data with respect to each are presented in Table 7. Recall that 19.1 is the mean number of lines for all messages sent to "ddd" through electronic mail.

Table 7
Policy/Procedure Message Length
N=204

Message Type	Number of Messages	Range of Lines	Mean Number of Lines
Policy/Procedure	8	9-58	21.6
Other Messages	196	1-247	19.0

Because the mean length of Policy/Procedure messages is greater than the mean for all other messages, Proposition 7 is supported.

Proposition 8: The "ddd" alias is used more frequently for one-time messages than for routine/repetitive messages.

Messages distributed on a regular basis (e.g., minutes of meetings) were classed as routine; messages that clarified, expanded upon, or duplicated earlier messages were classed as repetitive. Table 8 provides specific information about the number of original and routine/repetitive messages gathered during the study period.

Table 8
Message Frequency
N=204

Message Type	Frequency	Percent	Cum Percent
Original	130	63.7	63.7
Routine/Repetitive	74	36.3	100.0

Since almost two-thirds of the messages were classified as originals, Proposition 8 is supported.

Proposition 9: Staff members use more electronic mail enhancement features than do administrators or faculty members.

The only enhancement feature used in this data set, "footerbox," appeared in just 29 of the messages. The footerbox feature allows users to include a block of information (e.g. quotation or name/address/phone number/fax number, etc.) on every message she/he sends without having to key it each time. As shown in Table 9, support staff use this feature most often.

Table 9
Enhancement Feature Users
N=29

User Group	Frequency	Percent	Cum Percent
Administrators	14	48.3	48.3
Faculty	0	0.0	48.3
Support Staff	15	51.7	100.0

The data provide evidence that staff members are the most frequent users of enhancement features, so Proposition 9 is supported. A detailed examination of the messages that used the footerbox feature revealed that the individual who used the feature most often was the campus Human Resource Manager. This administrator generated 11 messages using the footerbox feature.

Discussion

It is recognized that the findings of this project are the result of analysis of a relatively small sample of electronic mail messages drawn from a specific time period and a unique mailing list from one university. Therefore, the findings may not be generalizable to any other specific academic setting or to the general population of academic settings. However, based on the findings of this project, the authors draw the major conclusions and make the recommendations for further research that follow.

Based on an analysis of 204 messages distributed to an alias with electronic mail addresses for middle-level managers at a medium-sized Midwestern university during the spring quarter of the 1993-94 academic year.

1. Electronic mail is not being used frequently by deans or campus-level administrators as a medium for communicating with members of the campus community. The relatively low use by administrators (26 percent) compared to that of others (74 percent) and the very low (4 percent) use for communicating policy/procedure items indicate that other means are being used much more frequently for administrative communication to members of the campus community. It is possible that deans and campus-level administrators have established additional, more specific aliases for communication with others at their administrative level; this research, however, did not explore such communication path options.

2. Availability of electronic mail technology does not result in a high rate of initiation of communication to and among middle-level managers outside of regular (8:00-4:30, Monday-Friday) work hours. Fewer than 12 percent of the messages in this study were initiated outside of regular work hours; fewer than 1 percent were generated on non-work days.

3. The fact that nearly one-third (65) of the messages in the sample were copied to their originator may indicate that there is a strong mistrust of the electronic mail system. Further, this finding may indicate that some of those who send messages to the "ddd" alias are not listed among its receivers.

4. The strong presence of event-oriented messages (speakers, concerts, banquets, etc.) and non-business, general messages (April Fool's prank and responses, health updates, etc.) may signal the need for a campus-wide alias in addition to "ddd."

Such a separation might encourage greater use of the "ddd" alias for administrative communication while allowing those wishing to reach a larger campus audience an electronic method by which to do so.

Following completion of this exploratory research, the following recommendations for additional research are made:

1. Additional data should be collected at the institution involved in this study to determine how often electronic mail is read at unit ("ddd") addresses, who reads the messages, and what occurs after the messages are read, i.e. are they deleted, printed and circulated, forwarded, etc.

2. Additional research should be done at the institution involved in this study to determine whether there is a difference in the number and characteristics of electronic messages distributed on the "ddd" list based on the calendar quarter, academic term (quarter), time period within the academic quarter (beginning or end), or time period within the fiscal year of the institution.

3. Those on the specific e-mail list used for this project should be surveyed to determine what they know about the membership and use of the list, what they perceive the purpose of the list to be, how satisfied they are with the current operation of this means of communication, and what they would like to see changed to better meet their needs.

4. A project should be completed to determine whether other academic institutions have developed groupings or alias lists similar to the "ddd" list used in this study and for what purposes any such lists were developed. Data could also be collected to determine the number and characteristics of electronic messages sent on such lists. Comparisons could be made among lists, and more generalizable conclusions and recommendations would result.

5. A project should be completed to determine whether industry use of a managerial alias parallels academic use of such an alias.

Based on the results of this study, the following suggestions are offered for those teaching business courses:

1. Students enrolled in computer-use classes should gain experience in creating and sending messages via electronic mail aliases.

2. Students enrolled in managerial-level information systems classes might be asked to develop policies and procedures for creating and maintaining electronic mail aliases.

3. Students in business communication classes would benefit from discussing the pros/cons of using electronic mail as a means for transmitting policy/procedure messages. Where computer equipment and appropriate software are available, students should be asked to create and transmit not only general correspondence but also policy/procedure messages through an electronic mail alias.

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Factors Influencing the Successful Use of Technologically-Mediated Instructional Strategies in Business Organizations

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Abstract

This study sought to report opinions of trainers regarding the successful use of technologically mediated instructional strategies (TMIS) in business organizations. Research questions addressed the importance of contextual and instructional factors and the extent to which the factors exerted a positive or negative effect on successful use. Top administrative support and resource availability were the most influential contextual factors while bureaucratic obstacles were least influential. Teaching competence and positive instructor attitude were the most influential instructional factors while technological competence was rated least influential. Poor learner attitudes and the lack of organizational rewards for both trainers and learners were reported as a hindrance to successful use.

Background

In an effort to develop a wholistic research agenda to study TMIS, a search of the literature was undertaken by the authors and their associates. Journal articles, books, and government and industry reports yielded a plethora of information about technological changes and the practical application of specific instructional technologies. Trainers and educators addressed issues such as the effectiveness of instructional techniques (Gery, 1989; Goddard, 1989; Harbour, 1988) and decision making in the selection and use of media (Albin & Albin, 1988; Chao, Legree, Gillies, & Sanders, 1990). Some literature presented an overview of one area of technology such as interactive videodisc (Rockwell, 1986; Rockwell & Tate, 1986) or distance learning (U.S. Congress, 1989), while other works attempted to offer meta-analyses of trends and issues in TMIS (Training, 1989, 1990, 1991; Davis, 1990; Ely, 1990). Scholars such as Clark (1983a, 1983b) posed epistemological questions.

An analysis of the literature wrought categories and themes which were organized into a research agenda intended to provide guidance to future research efforts (Kizzier & Lavin, 1993; Kizzier & Pollard, 1992). A national survey of educators and trainers was undertaken to elicit baseline data to create a profile regarding the state of current practice as it relates to frequency of TMIS use, recipients of training, and factors related to selection and successful use of TMIS. The present study, a component of this larger baseline study, focused on successful use of TMIS.

Purpose and Research Questions

The purpose of the study was to determine the opinions of training and development professionals regarding the successful use of technology as an instructional strategy. The following research questions were addressed:

1. What is the relative importance of **contextual** factors and to what extent do such factors exert a positive or negative effect on successful employment of TMIS?

2. What is the relative importance of **instructional** factors and to what extent do such factors exert a positive or negative effect on successful employment of TMIS?

Research Methods

Sampling Procedures

This study sought to report on the behaviors and opinions of human resource trainers, therefore the sample was drawn from the national membership of the American Society for Training and Development (ASTD). The national office of ASTD supplied a list of 750 randomly selected members, representing all 50 of the United States. Of the 750 surveys mailed, 110 were received for a response rate of 15%. Although this may be considered a low response rate, it is comparable to response rates for a similar survey of training and development professionals conducted annually by Lakewood Research for Training (1989, 1990, 1991, 1992). For example, Lakewood's 1992 response rate was 13.4%.

Instrumentation

The survey instrument was developed by the investigators after an extensive review of the literature and the determination of the research questions.

Findings from two sections of the five-part survey are reported here. One section sought to determine the influence that contextual and instructional factors exert over the perceived successful use of TMIS. Respondents ranked the thirteen influencing

factors from highest to lowest, then reported whether each of those factors influenced successful use in a positive or negative way. The second relevant section of the survey gathered demographic data including size and type of the respondent's organization and the level of involvement they had in the selection or purchase of TMIS.

Reliability and Validity

A pilot test of the instrument was conducted with 14 regional trainers who were similar to the participants identified on the mailing list. The pilot respondents provided feedback regarding conceptual organization, clarity of instructions, time commitment and readability. The final version of the survey instrument incorporated suggestions from the pilot group. Pilot test methods incorporated an assessment of face validity. Reliability of the instrument was not statistically tested because each of the separate sections of the instrument was too short and discrete to support such inquiry.

Administration of Instrument

The questionnaire, accompanying instructions and pre-stamped return envelope were sent to the randomly selected sample of business trainers. After six weeks, a follow-up postcard was sent to non-respondents. Surveys were returned anonymously, marked with only a tracking number to facilitate the follow-up mailing. The research procedures met institutional guidelines at the University of Nebraska-Lincoln for protection of human subjects.

Findings and Discussion

In order to address the research questions, data were analyzed by mean and standard deviation for seven contextual factors and six instructional factors. Data were reported by overall rank, positive and negative effect. In addition, demographic data were collected, describing organizational size, number of learners that decisions impact, involvement in selection and purchase decisions and organizational type.

Demographic Profile

As illustrated in Table 1, respondents represented all organizational size categories, ranging from under 100 to over 50,000 employees.

As illustrated in Table 2, the survey results represented respondents who reported that their decisions affected all learner impact categories, ranging from under 100 to over 10,000 learners.

Table 1
Organizational Size
N = 109

Size*	N	%
1-99	20	18.3
100-499	8	7.3
500-999	11	10.1
1000-2499	11	10.1
2500-4999	14	12.8
5000-9999	10	9.2
10000-24999	13	11.9
25000-49999	12	11.0
>=50000	10	9.2

*Number of employees in organization

Table 2
Number of Learners Affected by TMIS Decisions
N = 108

Learners Affected	N	%
1-99	8	7.4
100-499	24	22.2
500-999	13	12.0
1000-2499	21	19.4
2500-4999	25	23.1
5000-9999	9	8.3
>=10000	8	7.4

Respondents were asked to describe their involvement in the selection and purchase of instructional technology. Offered the choice to define their capacities, as defined in Table 3, many indicated multiple responsibilities. The respondents most heavily represent those who recommend and select technology for their institutions.

Table 3
Involvement in Selection and Purchase of TMIS
N=110

	N	%
Recommends (has input into decision)	88	80.0
Selects (makes final decision)	61	55.5
Purchases (authorizes purchase)	35	31.8

Note. Respondents marked all categories that applied.

Table 4 indicates that survey respondents represented all ten of the organizational type categories included on the survey instrument. The highest number of respondents came from the manufacturing industry (28.2%). The next highest representation came from business services (16.4%) and educational services (15.5%).

Table 4
Type of Organization
N = 110

Organizational Type	N	%
Manufacturing	31	28.2
Business Services	18	16.4
Educational Services	17	15.5
Transportation/Communication/Utilities	11	10.0
Finance/Insurance/Banking	8	7.3
Public Administration/Government	7	6.4
Wholesale/Retail Trade/Food	7	6.4
Health Services	5	4.5
Assocations./Non-Profit Organizations	5	4.5
Agriculture/Related Production Services	1	.9

Contextual Factors

Ranking. As illustrated in the "overall rank" column of Table 5, respondents rank ordered seven contextual factors based on the influence each factor was perceived to have on the successful use of TMIS within business organizations. To further investigate respondents' perception of the importance of the contextual factors, a crosstabs was constructed, illustrated in Table 6.

As illustrated in the "overall ranking" column of Table 5, issues related to allocation of resources (time and money) and administrative support were identified as most influential. An analysis of the crosstabs in Table 6 provides further insight into respondents' perceptions. Over 43 percent of the respondents rated administrative support as the most important environmental factor; this percentage was notably higher than any of the other top-ranked contextual factors. Comparatively, availability of technology and adequacy of the learning environment were ranked markedly lower. Bureaucratic obstacles received the lowest importance ranking.

The importance of top administrative support and resource allocation is consistent with factors identified in studies cited in literature regarding the management of change in the technological environment (Swanson, 1988; Hershey & Kizzier, 1992).

Positive/negative influence. In addition to ranking the contextual factors, respondents were asked to indicate whether each factor helped or hindered their work within their organizations. Table 5 reports the mean ranking of each factor, calculated based on whether the respondent classified the factor as helping (exerting positive influence) or hindering (exerting negative influence). For example, all 106 respondents indicated "top administrative support" as the factor having the most influence on successful use of TMIS. However, 86 respondents reported the factor supported their instructional efforts and 16 respondents reported that the same factor was a hindering condition in their organization.

As illustrated in Table 5, the contextual factors reported to favorably influence successful TMIS use (positive influence column) were consistent with the overall ranking. The same three factors which were identified as exerting the most positive influence in successful TMIS use were reported to hinder instructional success. However, the ranking was slightly different and the negative influence was reported to exist in far fewer organizations.

Table 5
Ranking of Contextual Factors Influencing Successful TMIS Use
1 = most influence
7 = least influence

	Overall Rank			Positive Influence			Negative Influence		
Contextual	Mean	SD	N	Mean	SD	N	Mean	SD	N
Top administrative support	2.75	1.93	106	2.74	1.92	86	2.44	1.82	16
Adequate time allotted for instruction	3.02	1.51	105	3.15	1.51	62	2.74	1.48	39
Adequate funding	3.70	1.86	105	3.88	1.88	65	3.61	1.77	33
Ability to show measurable results	4.12	2.10	105	3.88	2.13	78	5.05	1.94	21
Technology is available (have it or can get it)	4.16	1.89	106	4.25	1.74	69	4.00	2.21	31
Adequate learning environment (location, lighting, space, etc.)	4.23	2.02	106	4.31	1.97	77	3.79	2.13	24
Easy to "cut the red tape" and get things done	5.08	1.78	104	5.03	1.79	69	5.20	1.79	30

Table 6
Crosstabs
Importance Rank X Contextual Factor
N=106

1 = most influence
7 = least influence

Factors		Rank 1	2	3	4	5	6	7
Administrative support	N	44	14	10	11	14	4	5
	%	43.1	13.7	9.8	10.8	13.7	3.9	4.9
Adequate time allotment	N	18	26	20	22	7	7	1
	%	17.8	25.7	19.8	21.8	6.9	6.9	1.0
Adequate funding	N	10	21	15	16	15	12	9
	%	10.2	21.4	15.3	16.3	15.3	12.2	9.2
Ability to show measurable results	N	19	8	12	12	15	16	17
	%	19.2	8.1	12.1	12.1	15.2	16.2	17.2
Availability of technology	N	7	19	14	11	23	11	15
	%	7.0	19.0	14.0	11.0	23.0	11.0	15.0
Adequate learning environment	N	9	16	19	13	11	13	20
	%	8.9	15.8	18.8	12.9	10.9	12.9	19.8
Ease of cutting red tape	N	4	6	14	9	12	29	25
	%	4.0	6.1	14.1	9.1	12.1	29.3	25.3

Instructional Factors

Ranking. Respondents rank ordered six instructional factors based on the influence each factor was perceived to have on the successful use of TMIS within business organizations. As demonstrated in the "overall ranking" column of Table 7, the teacher's overall attitude and teaching competence were reported as having the greatest influence on successful use of instructional strategies. Table 8 provides further insight into this finding by revealing the strength of respondents' ranking of instructional competence. Although the instructor's positive attitude was ranked as the second most frequently ranked top factor at 29 percent, the instructor's competence in teaching skills was identified as the top factor by a markedly greater percentage of respondents (44 percent).

The "overall ranking" column of Table 7 and the crosstabs in Table 8 illustrates that of the three instructor-related factors, technological competence was perceived as having the least influence. Tables 7 and 8 reflect very low rankings for organization rewards factors.

Positive/negative influence. In addition to ranking the instructional factors, respondents were asked to indicate whether each factor helped or hindered their work within their organizations. Table 7 reports the mean ranking of each factor, calculated based on whether the respondent classified the factor as helping (exerting positive influence) or hindering (exerting negative influence). For example, 105 respondents indicated the instructor's teaching competence as the factor having the most influence on successful TMIS use. However, 93 respondents reported the factor supported instructional efforts in their organizations, and 7 respondents reported the factor as a hindering condition in their organizations.

The factors identified as exerting positive influence in successful TMIS use were consistent with the overall rankings. Factors identified as exerting a negative influence were ranked similarly, with the exception of learner's positive attitude, defined as a desire for growth and self-development. Poor learner attitudes were reported to hinder instructional success. Overall, the negative instructional conditions were reported in very few organizations, with the exception of organizational rewards (e.g., pay, status, credit, recognition) for instructors and learners.

Table 7
Ranking of Instructional Factors Influencing Successful TMIS Use
1 = most influence
6 = least influence

	Overall Rank			Positive Influence			Negative Influence		
Instructional Factors	**Mean**	**SD**	**N**	**Mean**	**SD**	**N**	**Mean**	**SD**	**N**
Instructor's competence in teaching skills	2.03	1.15	105	1.92	1.07	93	3.14	1.07	7
Instructor's positive attitude	2.35	1.19	105	2.28	1.15	95	3.40	2.07	5
Learners' positive attitude	2.97	1.21	106	3.02	1.19	88	2.54	1.20	13
Instructor's competence in technological skills	3.47	1.70	105	3.27	1.70	86	4.75	1.14	12
Organizational rewards for learners	4.54	1.46	105	4.47	1.54	68	4.82	1.02	28
Organizational rewards for instructor	5.17	.97	104	5.14	.98	93	5.13	1.04	32

Table 8
Crosstabs
Importance Rank X Instructional Factor
1 = most influence
6 = least influence

		Rank					
Factors		**1**	**2**	**3**	**4**	**5**	**6**
Instructor's competence in teaching skills	N	44	26	16	13	1	0
	%	44.0	26.0	16.0	13.0	1.0	0
Instructor's positive attitude	N	29	31	25	9	4	2
	%	29.0	31.0	25.0	9.0	4.0	2.0
Learners' positive attitude	N	14	20	32	29	3	3
	%	13.9	19.8	31.7	28.7	3.0	3.0
Instructor's competence in technological skills	N	15	20	16	18	11	18
	%	15.3	20.4	16.3	18.4	11.2	18.4
Organizational rewards for learners	N	5	5	10	14	34	28
	%	5.2	5.2	10.4	14.6	35.4	29.2
Organizational rewards for instructor	N	1	2	3	10	40	39
	%	1.1	2.1	3.2	10.5	42.1	41.1

Conclusions and Recommendations

The following conclusions were derived from this research:

1. Of the contextual factors, top administrative support was clearly the most influential in successful employment of TMISs. Allocation of resources was also ranked as highly influential. The availability of technology and adequacy of learning facilities were ranked markedly lower than administrative and resource factors. Bureaucratic obstacles were perceived to have the least influence on successful use.

2. Most contextual factors were reported to impact organizations in a positive way.

3. Of the instructional factors, the teaching competence of trainers was identified as having the single greatest influence on successful use of TMIS in business organizations. Trainers' positive attitude was also identified by a large percentage of respondents as having influence over successful TMIS use. Of the three instructor-related factors, technological competence was perceived as the least influential in successful TMIS use.

4. Most organizations report that instructional factors influence successful TMIS use in a positive way. Only two factors were reported as hindrances to successful TMIS use. Poor learner attitude is the most problematic of the instructional factors. In addition, while organizational rewards

for learners and trainers (e.g., pay, status, course credit, recognition) was ranked as having the least influence on successful TMIS use, a notably large percentage of respondents reported the lack of rewards as a hindrance within their organizations.

Based on these conclusions, the following recommendations are made:

1. Given that top administrative support was identified as the single most influential contextual factor in successful TMIS use, those who are involved with planning and implementing technology should recognize the importance of gaining top administrative support and should design strategies to elicit this support.

2. Given that instructors' teaching competence was the single most influential instructional factor leading to successful TMIS use, those charged with selecting and training technological instructors should pay sufficient attention to selection of trainers based on teaching competence and to design "train the trainer" opportunities to ground trainers in proven successful teaching strategies.

3. Given that instructor's positive attitude was identified as important to successful TMIS use, those charged with selecting trainers should use instructor attitude as a key criteria in the selection of trainers.

4. Trainers should recognize the influence of learner attitude in successful training.

5. Organizations should reevaluate the effectiveness their reward structure for trainers and learners.

6. Further research should investigate the potential connection between lack of learner rewards and negative learner attitude.

7. Given that instructor's teaching competence was the single most important factor leading to TMIS use, it is recommended that further research be undertaken to investigate ways to enhance teaching competence using such new TMISs as multimedia and distance learning technologies.

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Factors that Influence the Development of Collaborative Arrangements Between Universities and Corporations for Degree Program Education

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Abstract

Technology, economics, and competition influence collaborative arrangements. As universities seek to maintain educational objectives, corporate concerns focus on cost-effectiveness and worker productivity. This paper discusses the historical significance of adult continuing education, its merger with workplace training, and the current trend toward collaborations between universities and corporations to provide degree program education. A proposed case study of the General Motors/ Rensselaer Polytechnic Institute collaboration attempts to show such collaborations are cost beneficial to both the university and the corporation.

Introduction

Over a decade ago, Malcolm Knowles (1977) recognized the emergence of, and opportunity for, corporate education when he stated, "Business and industry have indeed become major adult educational institutions" (p. 294). One could say he predicted the collaborative arrangement opportunity for corporations with colleges and universities when he reported an increasingly closer cooperation between corporations and formal educational institutions. Collaborations should be based on cooperation and the results should be synergistic and positive (Morse, 1984). There long has been agreement among industry and academic researchers that educational collaboration between universities and business occurs and, in most instances, is positive (e.g., Serbein, 1961; Knowles ,1977; Morse, 1984; Eurich, 1985; Moore, 1993). However, there are differing opinions as to what factors influence the methodology or strategy that should be used in today's global marketplace to achieve these positive results (e.g., Stern, 1983; Cervero, 1988). Susman, Koenigsberg and Bongard (1989) stated, "These partnerships will be successful if the different needs of industry and university are recognized. Whereas industry is output oriented, the academic world focuses on the creation of knowledge and is adverse to the commercialization of ideas (p. 252). Regardless of which proposal proves best, the growth of corporate education has stimulated internal collegiate debates and corporate educational policy decisions.

Focus of the Investigation

The discussion surrounding collaborative arrangements suggests the following research hypothesis:

> *The educational degree program collaborative arrangement between a university and a corporation is cost beneficial to both.*

In an effort to explore and to evaluate the decision-making process involved in corporate-university arrangements for degree program education, the following sub-areas were studied:

1. The array of collaborative arrangements that exists between universities and corporations to develop educational degree programs. Among the topics considered were the origin of program initiation, the location for delivery of the program, and the availability of non-degree or degree programs.

2. How these collaborative arrangements developed over time. What historical events and philosophical overtones associated with those events promote these partnerships?

3. The recent economic and technological conditions that propel the delivery of corporate education degree programs.

4. The unique organizational factors within universities and corporations that influence collaborative arrangements to develop educational degree programs.

Historical Events and Philosophical Overview

Corporate Settings

Since World War II, business and industry have recognized that the educational competency of their workers is required to maintain a competitive edge in the global marketplace and have made the commitment to train the workforce to meet those standards (e.g., Serbein, 1961; Lusterman, 1977; Peters and Waterman, 1982; Morse, 1984; Eurich, 1985, 1990; Goldstein, 1986; Fairweather, 1988; Carnevale, 1989; Lerner and King, 1992). The majority of the educational experiences discussed in these studies are considered practical, on-the-job, task oriented instruc-

tion that has been part of the "umbrella" of corporate continuing education: short classes, non-credit courses, and no degree programs. Lusterman (1977) divided the then existing industrial educational programs into three categories: 1) training entry-level personnel, 2) training to remain technically competent, and 3) training to improve skills.

Once corporate management decided that training its workforce was a business investment, a way to improve morale and productivity, they began spending vast amounts of money (Lusterman, 1977; Morse, 1984; Nash and Hawthorne, 1987; Eurich, 1985, 1990; Carnevale, 1989; Tennenbaum and Woods, 1992). Estimates range that from $40 to $200 billion is spent annually. The narrow view of education no longer exists as corporations and universities examine their role in providing education to non-traditional students in non-traditional settings.

Corporate Colleges

A educational innovation is the corporate college. These colleges have developed from three forms of sponsorship: 1) Individual business corporations (e.g., General Motors), 2) Industrywide interest and concern (e.g., American Institute of Banking), and 3) Professional, research, and consulting organizations (e.g., Institute of Health Professions).

One specific way corporate colleges have deviated from traditional campus programs is by their physical setting. Some of the corporate colleges are housed on-site within the corporate facilities or in office buildings. Corporate classrooms use many more non-traditional delivery modes, such as videotaped classes and satellite downlinks, that can be accessed at any facility. As technology grows, it appears that corporate courses incorporate innovative electronic methods for classroom instruction more quickly than traditional campus courses (DeSio, 1990; Major and Shane, 1993; Moore, 1993).

What similarities do corporate colleges and traditional universities share in organizational structure? Corporate colleges, like traditional colleges, have presidents, provosts, deans, curriculum committees, admissions and academic counselors, and course catalogs. Accreditation standards are enforced.

Differences between the corporate college and a traditional college are the corporate college's great use of part-time faculty and its provision of curricula that are more flexible. In order to maintain academic standards and, at the same time, offer innovative coursework, faculty and course evaluations are an integral part of the corporate college system (E. Alef, J. Johnson and P. Swaine, personal interviews). The most severe problem facing corporate colleges has been the integration of theory and practice. Traditional colleges are slow to change courses to match the corporate technology and needs. The initiative for change usually comes from the business sector.

College Settings

Among the many issues facing higher education today is the one of meeting the learner's needs and, at the same time, maintaining institutional integrity. Greater attention is being paid to the non-traditional student. Course selection and scheduling are now considered by the marketing department of the university as "selling points." For example, Houle (1992) reported several researchers consider the community college a welcome addition to the educational institution family. Corporations view the community college curriculum as a good fit because community colleges change their curriculum more frequently to keep abreast of technology.

Professionals often regularly need to take profession-specific technical courses to maintain state and/or professional certification. Among the accredited number of providers who offer Continuing Professional Education (CPE) programs are university business schools, professional schools within a university that maintain continuing education departments, community colleges, and some professional associations (e.g., Bridgman, 1959; Stern, 1983; Lynton and Elman, 1987; Cervero, 1988; Knox, 1990).

Many of the corporate and university collaboration issues raised, such as shared technology, copyright ownership, revenue, and faculty, are among the same issues facing universities and corporations when they plan collaborative educational degree programs. Briefly stated, the opportunity to participate in joint educational ventures has taken various forms throughout the past few years, including opportunities for consulting, research consortia, and jointly owned laboratory facilities. In many cases, colleges made changes in their missions, locations, or programs. The communities and/or corporations also altered budgets, changed missions, or relocated. All benefitted in some way from the collaborative arrangement.

College and Corporate Organizational Structures

Is the arrangement compatible? College administrators have expressed concern about maintaining academic integrity, policy, and identity when forming educational collaborations with corporations (Keller, 1983; Fairweather, 1988; Lerner, 1992). Questions arise about who maintains control of the program development and evaluation of the programs (Nash and Hawthorne, 1986; Aslanian, 1988; Alkin, 1990). Chmura (1986) believed economic development opportunities helped colleges become more strategic, entrepreneurial, and externally oriented.

Corporation administrators express similar concerns about maintaining corporate integrity. Most large corporations have state-of-the-art education offices that house education department deans or directors, program administrators, registrars, and the distance learning equipment necessary for class instruction. The organizational chart in Fig. 1 shows the parallel job positions.

Figure 1
University and Corporate Organizational Chart

University Setting	Corporate Setting
Dean of School	Dean of Corporate Education
Associate Dean	Associate Dean
Department Chair	Regional Administrator
Registrar	Registrar/Secretary
Instructors	Teaching Assistant

What other internal concerns do colleges and corporations need to consider when they contemplate forming a collaborative arrangement? Throughout the studies, three terms have been mentioned consistently as major influential factors in corporate and university collaborative educational arrangements: *Technology, Economics, and Competition*

Identifying Factors that Influence Collaborative Arrangements for Educational Degree Programs

Technology, Economics, Competition

These terms have provided controversial, confrontational, and cooperative approaches considered critical influences by researchers and business executives who pursue and coordinate collaborative educational agreements. They appear to be the conditions upon which universities and corporations go about the business of setting the foundation upon which to build a positive collaboration. In order to understand fully the complex issues involved in forming collaborative arrangements between universities and corporations, a "universal" language must be drawn from corporate-specific and university-specific jargon.

Technology

The explosion of new technology has sparked the interest and growth of the university-corporate collaborations. Technology is discussed in two broad areas:

1) Instructional Delivery Systems - Distance learning technology that allows universities and corporations to reach a larger adult learner population. There is a variety of distance learning systems.

2) Industrial/Research Advances - The changes in industrial or scientific technology occur so rapidly that it is impossible for one university laboratory or one corporation to maintain all the necessary expertise to stay current.

Economics

This term is now broadened and applied in three ways:

1) The economic or dollar costs involved in employee training/education and university expenditures.

2) The revenue either spent or earned through the collaboration efforts.

3) The philosophical or psychological costs or considerations affecting, among other things, the motivation, loyalty, commitment, values and beliefs of the personnel and institutions involved in a collaboration.

Competition

Competition can be real or imagined.

1) Competition in industry relates to market share or profits.

2) Competition in higher education usually means, among other things, maintaining a stronger academic profile, greater enrollment, and more research grants than other institutions. (Athletic competition is not considered in this discussion).

Identifying and Analyzing Influential Factors

How do these terms - *technology, economics,* and *competition,* influence the development of collaborative educational arrangements for degree programs? Among the issues that impact how corporations and universities define these conditions for themselves are: mission, organizational structure, needs, budgets, demographics, and consideration of a customer (Gilly, Fulmer, and Reithlingshoefer, 1986; Nash and Hawthorne, 1987; Lerner, 1992). The terms are expanded and interpreted somewhat differently by each prospective partner, but once the key terms are established, the factors are apparent.

> Universities consider each term as it affects the college organization - its *mission*, its *values* and *beliefs*, its *faculty* and *staff*, its *students*, and its *commitment to the community*.

> Corporations consider each term as it affects the corporate organization - its *mission*, its *values* and *beliefs*, its *workers*, its *customers*, and its *commitment to the community*.

Interestingly, the terminology is almost identical. However, what is very different is what *motivates* each prospective partner to consider the collaborative arrangement. The following analysis utilizes a vocabulary that allows both a university and a corporation to examine what factors influence their decisions. Each factor considered has been interpreted by university researchers and administrators and by corporate trainers and executives. At times, it becomes difficult to separate each of the above factors as independent influences.

Technology

University. Universities, which in the past have been the leaders in developing new technology, now find themselves having difficulty keeping existing lab and computer equipment current with exploding technology changes. Corporations criticize universities for not offering industry-specific coursework, for not

training students well for the work place environment, and for being slow to change. Distance learning technology has opened the doors to a wider range of course subject matter and a variety of delivery options. Universities are now forced to decide if they want to collaborate.

Corporation. Change in technology is now occurring more frequently in industry rather than in the university setting, and corporations need qualified employees who understand the change and can adapt to it. Corporate strategy is to develop worker productivity and corporate profits; therefore, curriculum and content must relate specifically to the job, must be flexible in terms of scheduling and length of course, and must be accessible to employees.

Economics

University. Universities want to collaborate with business to improve department-specific and/or university-wide financial status. For example, revenue gained through a corporate-university collaboration to provide degree programs is used to fund department or faculty research projects and to allow faculty to hire more graduate teaching assistants (J. Johnson, personal interview).

Some researchers found that immediate revenue was not the only economic benefit gained. Several schools interviewed by Gilley, Fulmer, and Reithlingshoefer (1986) identified important working relationships with business and industry. Joint educational ventures have enjoyed enthusiastic support from both sectors. Based on the research, collaborative ventures appear to be a national trend.

Corporation. Over $30 billion a year is spent in direct costs for corporate education. Carnevale (1989) reported that 31 percent of corporate formal training is from outside providers. From this 31 percent, companies purchased 15.5 percent of training at a cost of $1,441,500,000 from community colleges and technical institutes and 31.2 percent at a cost of $2,901,600,000 from colleges and universities. Unfortunately, he did not separate costs based on degree or non-degree programs.

The need for workers to be adaptive to changing technology is forcing corporations to alter the ways participants are selected for educational opportunities. Lusterman (1985) reported two kinds of changes:

1) Participation is no longer by self-selection; participants are now nominated by their managers or supervisors. Since training is tied to the goals of the corporation rather than just course offerings, participation has become selective and mandatory.

2) Training entire management teams or categories of employees is becoming more common in large companies.

Competition

University. Universities are becoming more creative in designing curricula to meet consumer needs. In a significant attempt to improve corporate and university collaboration, traditional colleges are learning business jargon and are looking outside the traditional campus for alternative delivery modes. Some questions still need to addressed. Are part-time students welcomed? Does the institution have courses beneficial to industry? Are the faculty willing to establish programs to fit the corporate needs?

In some cases, general location and/or regional demographics may create an environment that forces a college community to make a major change. Examples: Carnegie-Melon University, affected by the decline of the steel industry, altered its curricula, and George Mason University grew because surrounding technical expansion forced it to do so (Gilley, Fulmer, and Reithlingshoefer, 1986).

Corporation. Corporations and universities share the problem of preparing people for the workplace in times of changing demographics, technology, and economics.

Outside contractors are often more cost-effective than an internal staff. Many companies combine their internal educational programs and facilities with a collaborative arrangement with universities to provide specific programs.
Previously, corporate training was not locked into an academic calendar. Today, a corporation may adjust its corporate calendar to match a university's academic year.

Combining the Factors and Forming Opinions

"Industry and academe differ fundamentally in motivation, goals, organization structures, and employee attitudes and behavior. Resolution of these differences is crucial to establishing and operating industry-university relationships" (Fairweather, 1988, p. v).

At this time, there appears to be no tested model to evaluate if the existing collaborative arrangements will have long-term success. What is known is that the corporation actively seeks out the university collaboration. Needs analyses are performed, curricula are reviewed, locations are considered. Throughout the entire process, the university maintains complete educational autonomy. Each academic dean or program director emphasized the educational autonomy granted the academic partner (S. Bray, J. Johnson, and D. Robertson, personal interviews).

What we do have to use for help in designing an appropriate model are the numerous studies describing the different, yet intersecting, segments of the adult education movement. Each of the factors that influence today's corporate and university collaboration for educational degree programs can be traced to

at least one of these segments. Technology, economic conditions, and competition have been influencing and directing American adult education.

Corporations are pleased with the quality of their own educational course offerings. Traditional colleges are now being asked to accept courses that earned credit at accredited corporate colleges as credit toward traditional degree programs. Has the traditional college lost tuition dollars by not providing courses needed by the corporation or has the corporation increased the traditional college's tuition base by providing the initial interest toward gaining a degree? This question merits further study in determining the factors that influence corporate/university collaborations.

A benefit for institutions is an improved ability to recruit students and faculty. The potential costs include decreased emphasis on undergraduate education, conflict with graduate program process, reduced faculty attention to instruction and diminished student-faculty interaction. Institutions must be concerned about technology transfer and economic development research that may conflict with academic freedom. Do the benefits outweigh the costs? "The compatibility of industry-university liaisons with academic functions is complex because a single relationship can *simultaneously* benefit certain academic functions while harming others. The central question is whether the overall impact, taking into account benefits *and* costs, makes the industry-university arrangement worthwhile" (Fairweather, 1988, p. 70).

Corporations will continue to provide educational opportunities for their employees. The corporation realizes the employees are motivated, and that motivation includes improved lifestyle, improved positions within the corporation, and employees adaptable to changes in technology. An example of the explosion of courses and subjects that are now and can be taught on the corporate site is the General Motors' collaboration with seven universities cited later in this paper. No longer does corporate education rely on the traditional modes of instruction of lecture and discussion with occasional video and film. Today, because of the technology explosion, there is a greater use of technology in delivering courses.

Factors that Inhibit Collaborative Arrangements

It is important to present some of the factors that inhibit collaborative arrangements. Fairweather (1988) stated there are three primary reasons given for institutions *not* to develop close relationships with industry:

1) a fear that academic freedom will be compromised because of the need for corporate proprietary security

2) a fear from the faculty that the relationships will focus money only on the commercially viable areas, reducing teaching loads and research in less industry-attractive subjects

3) a fear of loss of funds by institutions which rely on state- and/or federally-funded programs.

Factors that Encourage Collaboration

Fairweather (1988) also gave some strong arguments in support of collaborative arrangements between colleges and industry:

1) increased faculty awareness to "real world" situations

2) improved access by faculty and students to cutting-edge technology, especially in scientific and technical areas, which cannot be developed internally because of current financial constraints

3) access to industry personnel, expanding networking opportunities

4) enhanced institutional revenue by the commercialization of faculty research discoveries

5) improved status and governmental funding for state- supported universities that demonstrate a positive connection between institutional research activities and the state's economy.

Lacking an Evaluation Model

As mentioned, a major concern facing university and corporate planners is the lack of a proven model to guide them when they are trying to decide whether or not to develop a collaborative educational degree program. Fairweather (1988) stated, "for evaluating industry-university alliances, four components are relevant: *description, impact, effectiveness,* and *cost-effectiveness*" (p. 78). In other words, program planners must ask appropriate questions:

1) Who are the participants and what are the activities?
2) What is their impact on the collaboration?
3) Did the agreement meet its goal for the university?
4) Did the agreement meet its goal for the corporation?
5) Was the degree program successful?
6) Was the collaboration cost-effective?
7) Did the institution get money to aid scholarships, teaching assistants or research?
8) Did the corporation save on tuition and time and gain competitive edge in technology?

If the answers to these basic questions are positive, then the collaboration is working. If there are sub-issues within each question that remain unresolved, then more attention must be paid to seeking an acceptable solution (E. Alef, J. Scudder, personal interviews).

A Summary of the Collaborative Arrangement Between General Motors and Seven Universities to Provide Education Degree Programs

General Motors has a collaborative arrangement with six universities and colleges to provide educational degree programs on-site at GM facilities throughout the country. The University of Michigan program is held at the university and has requirements different from the other six (See Table 1).

Tuition and Educational Requirements

General Motors pays the full tuition and the employee attends "class" at the corporate education office during the working day. These degree programs are the same programs that are offered on the individual university's campus - *the university maintains complete educational autonomy.* GM employees must meet the university's entrance requirements, including entrance exams and transfer credits, to be admitted to a program. GM provides tutorial assistance to employees who must take entrance exams (E. Alef, E. Chapman-Moore, D. Robertson, and S. Manceor, personal interviews).

Course Instruction/Delivery

Most of the courses are video-taped during live classes on the university campus. The tapes are express-mailed to the appropriate GM educational facility for viewing during the next week. The instructor maintains office hours via telephone or E-mail. Each university course has a qualified on-site assistant available, serving as a campus teaching assistant would. The corporate assistant is hired by General Motors, but must meet the academic/faculty requirements of the collaborative institution. In some cases, the assistant is a full-time GM employee who has appropriate credentials and may have designed some of the cutting edge technology being used in the class (P. Swaine, personal interview). All homework and exams are sent to the university instructor for grading. The same time frame exists for corporate employees to complete the degree as is imposed on campus students who attend part-time. GM has initiated a collaboration between universities for each to accept distance learning coursework taken through another university's distance learning program offered at GM.

Program Results

The program continues to grow with new courses being offered and new partnerships with additional universities being formed each term. Interviews with university administrators and corporate administrators provided anecdotal information about the successes and deficiencies of each program. Each administrator was asked to describe the program, and strengths and weaknesses of the collaboration. General Motors Technical Education Program Administrators interviewed were Ed Alef, Dean; Elaine Chapman-Moore, Associate Administrator; Sharon Manceor and Debi Robertson, Regional Administrators. Telephone interviews were conducted with the following university administrators: Sue Bray, Director of RSVP, Rensselaer Polytechnic Institute; John Johnson, Director of Engineering Education, Michigan Technological University; James Scudder, Associate Director of School of Educational Technology, Rochester Institute of Technology; and Philip Swaine, Director of Continuing Engineering Education, Purdue University. Their consensus was:

Strengths:
- student can gain advanced degree
- student can maintain technical proficiency to stay current with his or her job needs
- corporation remains competitive
- corporate facilities are technically superior
- university gains increased revenue
- university reaches a larger audience
- faculty learns about "real world" needs and advanced technology
- academic integrity of the program is assured

Weaknesses:
- physical and psychological distance
- no student participation in live class
- delay in turning back homework and exams
- lack of extensive feedback

Table 1
Colleges and Universities in Collaboration with General Motors

Columbia University	
	Professional Degree in Engineering
	Mechanical Engineering
	Electrical Engineering
Michigan Technological University	
	Bachelor of Science in Engineering
Oakland Community College	
	Associate of Science in Engineering
Purdue University	
	Master of Science in Engineering
Rensselaer Polytechnic Institute	
	Master of Science in Engineering Science (MSES)
Rochester Institute of Technology	
	Bachelor of Science in Electrical Mechanical Technology
University of Michigan	
	Ph.D. in Engineering*

*This program requires full-time attendance and the tuition is divided between General Motors and the employee. The employee remains on full salary and his or her job description changes to reflect participation in the Ph.D. program.

Source: General Motors Corporation. *Academic Degrees and Program Offerings: Catalog for Academic Years 1993-1995.*

These participants believe their collaboration is an example of the synergistic, positive results sought by Morse (1984). "Both industry and traditional education can benefit from cooperation and collaboration. For industry, traditional institutions offer faculty talent...and an administrative structure for granting credit and degrees....For education, industry provides...an opportunity for faculty to learn about technological changes and skills needed in the workforce (p.4).

Research Design

Research Problem

The topic of corporate and university collaboration to develop educational degree programs is an exciting and challenging one. Because of its newness, there is little scholarly information available that documents if it is working and, if so, how well it is working. One must look to what has been written about the peripheral issues and related topics that may influence the success or failure of a university and corporate arrangement to find comments about the results of the collaboration process. An example is the focus on the organization and governance of universities (e.g., Cope 1985, Birnbaum 1988, Peterson 1992). Woven into discussions of the concepts of university contextual planning, strategic choice, and administrative policy-making, a reader finds recommendations for universities to consider "new modules of learning, often supplied by non-classroom or non-campus based modes of transmission...and working collaboratively with non-educational organizations" (Peterson 1992, p. 12).

The related field of adult and continuing education is well represented by the works of, among others, Knowles (originally published in 1962 and revised in 1977), Brubacher and Rudy 1976, Darkenwald and Merriam 1982, Best 1989, Merriam and Cunningham 1989, Houle 1992, and Hunt 1992. These studies provide us with historical data as well as contemporary issues and trends that affect adult learners within traditional and non-traditional settings but tend to discuss business/education collaborations as they impact the job of a professional human resource manager or continuing education planner.

The literature review of continuing education for the professions provides numerous studies which detail the educational concerns and specific implications facing practicing professionals (e.g., ethics, accreditation standards, determinants of job satisfaction, technological advances, curriculum reform). Stark and Lowther's (1986) conceptual framework proposal introduces the opportunity to look beyond the university environment to obtain views from professional practitioners and graduates. Guba and Lincoln (1981), Goldstein (1986), and Alkin (1990) are among the researchers calling for more studies that report continuing education program evaluation.

Even the more specific field of non-degree education for business has its seminal works that trace the results of industry training and provide statistical evidence to support the benefits of, primarily, on-the-job training courses. Among the most frequently cited studies are those by Lusterman (1977, 1985); Carnevale (1983, 1989); Clarke (1984); Morse (1984); and Eurich (1985, 1990). In fact, the specific topic of direct cost benefits *through non-degree education* first appears in these works. Although his studies focused on the development and success of industry non-degree programs, Eurich (1985) stated the need for a "comprehensive analysis of the contributions and programs of the various providers" (p. 133). His second study (1990) echoed the same need, "The value of executive education appears to remain largely a matter of faith" (p. 196). Morse's study (1984) found that there was nonuniformity of evaluation instruments and outcome assessments, and that only one company in forty had any systematic approach to the evaluation of training and education programs.

The literature review has indicated two quite similar models proposed for use in evaluating *non-degree* corporate training courses (Bell and Kerr 1985, Del Gaizo 1984, Tannenbaum and Woods 1992). These models include evaluation criteria relating to corporate productivity, costs, and benefits. A comparison of both models shows similarity in defining evaluation criteria to validate course results. Neither model, however, discusses perceived costs and benefits to the collaborative provider.

Lack of Research about Perceived Costs/Benefits to a University

A multiple word search of data bases, (e.g. ERIC, MIRLYN, UM-MENTOR, WILS, PAIS, PSYC, ABI INFORM, PROQUEST) produced *no* scholarly studies that provided data to show the direct cost benefits (dollar amounts) enjoyed by a university when it entered into a partnership with a corporation to develop educational degree programs. Phelps et al.'s (1993) journal article reported this lack of research in their study. The monographs by Morse (1984), Nash and Hawthorne (1987), and Fairweather (1988) focused on the formal recognition and expansion of university and corporate sponsored educational collaborations, yet did not give specific evaluation models or procedures to follow. Perhaps Nash and Hawthorne's (1987 p. 85) succinct statement, "Proprietary education has failed to draw the attention of scholars", is one reason why there is a void of literature concerning benefits a university receives from a degree or a non-degree collaborative arrangement with industry.

Need for Research

As corporate training budgets continue to grow to meet the demands of technical training and diverse personnel skills, the need to evaluate the cost-effectiveness and worker productivity of these programs continues to gain importance. Lusterman (1985) reported changes in evaluation criteria now to include performance-related comments. Hofstader and Munger (1989) studied how quickly new knowledge gained through continuing education was being used in the workplace. They found that

corporations encouraged management training but did not consistently follow-up on the results or evaluate the method of that training.

Corporations have begun internal investigations to determine the perceived and actual cost benefit return on their investments in corporate degree programs. The amount of dollars saved has not been published externally because corporations consider the information proprietary, and in some cases, the unusually high dollar return on investment results is difficult to quantify. General Motors has preliminary data, collected over a three year period through its Value-Added Survey, that indicates the adjusted savings expense ratio is $4.50 to $1.00; i.e., for every $1.00 spent on job-related, *technical degree* education, General Motors realizes $4.50 in savings on an annual basis (E. Alef, personal interview). According to S. Bray (1993, personal interview), Rensselaer Polytechnic Institute (RPI) has not undertaken a formal cost benefit analysis on its collaboration with General Motors, but the program is "financially viable" because it pays the salaries of the office staff and funds the stipends for 15-20 graduate assistants.

Research Question

Since the literature review failed to identify any scholarly studies that focused on actual costs and benefit to a university partner, the need for further research into this topic presents the opportunity to suggest the following research question:

> *What are the costs and benefits of the collaborative arrangements between universities and corporations* that developed educational degree programs?

Based on the research question, the following research hypothesis was generated:

> *The educational degree program collaborative arrangement between a university and a corporation is cost beneficial to both.*

Methodology

Sample and data sources. I propose an investigative study of one corporate-university collaboration currently providing an educational degree program: the General Motors and RPI collaboration that offers a Master of Science in Engineering Science to General Motors' engineers. This study would provide data about costs and benefits to each partner. It would report whether a significant number of participants (corporate and university personnel and employee/students) determined that the benefits outweighed the costs of the program based on the goals and motivational orientation of the participants.

The sample for this study would be selected from three segments: corporate administrators from the education office, university administrative staff and faculty, and a random selection from the population of student/employees who have completed the program over the six (6) year existence and who are currently enrolled..

1) *Corporate administrators and supervisors*
   Respondents from this group should provide program evaluation on a long-term basis. In addition, supervisors could report daily work-related incidents which indicate satisfactory results because of the collaboration. They would report the costs and benefits of the program in relationship to the corporation's needs.

2) *University administrators and faculty*
   Respondents from this group may express a greater loyalty to the program, since they are the educational providers, the facilitators of the knowledge. They may have a vested interest in doing a "good job". They would report the costs and benefits of the program in relationship to the university's needs.

3) *Engineering students who are also corporate employees*
   Respondents from this group are important because, as members of both the university (students) and the corporation (employees), they are the link between both. They would report the costs and benefits of the program in relationship to their productivity for the corporation and to their own intellectual growth.

A representative sample, based on the total population of administrators, supervisors, faculty, and corporate engineering students participating in the program, will be randomly selected.

Variables

The General Motors "Value-Added Survey" identified four variables that gauge degree program effectiveness for the corporation itself as well as for the employee in relationship to the **Technology, Economics,** and **Competition** criteria:

1) *Productivity*
   This construct will measure how long it took an employee to complete a project before he or she participated in the degree program. It is possible to measure how long it took the same employee to complete a similar project after participating in the degree program.

2) *Proficiency*

This construct will measure the quality of completed projects before and after the employee participated in the degree program. Quality includes the increased use of technology, demonstrated skill, and degree of confidence exhibited by the employee.

3) *Continuous Improvement of Ideas*

This construct will measure the actual dollar amounts saved and number of technical ideas presented by the employee that were acted on or implemented before and after the employee participated in the degree program.

4) *Promotability*

This construct will measure the number and type of promotions an employee received before and after he or she participated in the degree program.

These variables will be used to determine university program effectiveness as well.

1) *Productivity*

This construct will measure how many new courses were developed, research undertaken, and/or scholarly articles published before and after the program participation.

2) *Proficiency*

This construct will measure the quality of instruction delivered before and after the faculty member participated in the degree program. Quality includes the increased use of technology in research and teaching, skill in teaching increased technology in coursework, and the increased confidence exhibited by the instructor.

3) *Continuous Improvement of Ideas*

This construct will measure the actual amount of dollars and the number of research opportunities (e.g., grants, fellowships, product development) that were awarded to or undertaken by university faculty before and after degree program collaboration.

4) *Promotability*

This construct will measure the number and type of promotions and/or forms of recognition of scholarly work a faculty member received before and after participating in the degree program collaboration.

Survey

The program to be studied will be the Master of Science in Engineering Science Degree offered by Rensselaer Polytechnic Institute (RPI) through a university-corporate arrangement with General Motors (GM) to develop educational degree programs. Two sets of survey questions will be developed that will provide data relating to the four variables given above and will be framed in the terminology of the conceptual framework categories: **Technology, Economics,** and **Competition**. One set will be given to corporate respondents (corporate administrators, supervisors, and engineering students) and one set to university respondents (university administrators and faculty). A Likert-type scale will be used to identify four choices: strongly agree, agree, disagree, and strongly disagree.

Sample Questions

The following are samples of the questions that will be designed to help the respondents focus on what factors - technology, economic conditions, competition - influenced them in determining if the program was successful.

Technology	SA	A	D	SD
1. The classroom technology as presented in the university cooperative venture is superior to what the corporation can provide.	1	2	3	4
2. The corporate technology is superior to what the university can provide.	1	2	3	4
Economics				
1. Compared to the cost of this program, I feel that the corporate funds were well spent.	1	2	3	4
2. Participation in this collaboration provides significant additional funds for Engineering Department research projects.	1	2	3	4
Competition				
1. Participation in the university-corporate collaboration has increased the university's status in the educational community (i.e., increased student enrollment, higher GPAs, more graduate degrees granted.	1	2	3	4
2. Participation in the university-corporate collaboration has increased the corporation's status in the business community (i.e., increased/improved production, greater technical expertise).	1	2	3	4

Data Collection

Both quantitative and qualitative data will be collected because to ignore one qualitative component (i.e., networking) in favor of another quantitative component (i.e., number of dollars saved) does not allow for a full analysis of the data. It is difficult to quantify how much knowledge was gained through collegial interaction (networking). It is difficult to understand the final results just by reporting the number of dollars spent or saved (E. Alef, personnal interview).

Data will be collected from one (1) course that will be preselected randomly from the degree program and will be collected through on-site visits to GM and RPI. Surveys will be administered to the predetermined, randomly selected number of respondents representing the corporation and the university. A mail survey was not considered because it usually has too small a response rate. The personal, on-site visits should yield greater information. Honest responses are anticipated from each sector.

Demographics

The surveys also will contain a demographic section that will provide information about the ages and educational levels of the respondents. It is important to be able to provide a composite profile of the sample being surveyed so that the data can be interpreted more fully. For example, demographic information from the corporate sector should provide descriptive statistics about respondents' median age, levels of education, and positions held in the corporation. Demographic information from the university sector should provide similar descriptive statistics about respondents' ages, levels of education, and academic rank.

Data Analysis

After surveys are conducted, the data will be analyzed, and descriptive statistics will be used to present the results of the responses. Means, medians and modes, standard deviations and histograms will be generated. Expected attitudinal response results should show mean responses to be higher, illustrating a strong perception in favor of benefits rather than costs. These results will provide support for the original hypothesis postulated and open the door for the development of a future longitudinal study.

Limitations

This study is not without its limitations. A major hurdle is the newness of the program. Without empirical evidence from which to gain an insight into the possible pitfalls of undertaking this research, there will definitely be a "trial and error" period. The program itself is still undergoing changes, and these changes may influence perceptions and, therefore, responses. This study has a small sample size, so attrition is a concern. Respondents from each group will be difficult to track when a follow-up survey is planned. Being adroitly able to blend responses about perceptions that require qualitative reporting methods with the quantitative methods that report statistical evidence will be a challenge.

Conclusion

Change is the only constant. Collaborative arrangements between corporations and universities to deliver educational degree programs are part of today's educational and business agendas. This study will provide data that identify common factors that influence the collaborative arrangement between a university and a corporation to deliver educational degree programs. Although this study has a small sample size, it will be easy to replicate and, when necessary, enlarge. This is a pilot study from which both partners can gain information about what are perceived costs and benefits of the collaboration. Given the total number of educational degree programs in existence and the number already being planned, this is a opportunity to collect and use valuable data. The decision to be innovative is now up to each university and each corporation.

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Higher-Order Thinking Skill Use in the Workplace

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Abstract

This study identified instances of higher-order thinking skill use in customer service aspects of banking through the use of qualitative research techniques. Additionally, bank employees' perceptions of how they acquired thinking skills were identified. Twenty-seven bank employees, representing branch managers, new account representatives, and tellers were interviewed using the behavioral event interview approach. Sixty-two instances of creative thinking, decision making, and problem solving skills use were maintained in the employees' own words, and the text managed with *The Ethnograph* computer software program. A review of the thinking skill instances revealed two interrelated themes. The first theme involved the generation of new ideas, determining the best alternative, implementing an alternative, or a combination of these in order to generate business or sales for the bank. The second theme involved the generation of new ideas, determining the best alternative, implementing an alternative, or a combination of these in order to solve a known problem. The interviewees stated they had received no formal thinking skill development from educational or work related programs and attributed most of their thinking skill development to experience.

Purpose

Higher-order thinking skills, including creative thinking, decision making, and problem solving are based in cognitive and metacognitive psychological theories. The America 2000 report (U.S. Department of Education, 1991) and reports of the Secretary's Commission on Achieving Necessary Skills [SCANS] (U.S. Department of Labor, 1991, 1992a, 1992b) have emphasized the need for higher-order thinking skill development in the nation. Lambrecht (1992) and Willis (1992) discuss three approaches to teaching higher-order thinking skills. These are the general, infusion, and immersion, with the infusion approach being the most widely used. This approach requires that higher-order thinking skills be taught in context. Therefore, specific, workplace related examples are needed. Additionally, Bailey (1990, May) concluded that tomorrow's workers will need more highly developed higher-order thinking skill abilities than past and present workers. One workplace setting where Bailey identified higher-order thinking skills as being needed was banking. Bennett (1992) emphasized that banks must provide superior customer service to grow and remain profitable. Thus, this study was developed to identify instances when bank employees used higher-order thinking skills, including creative thinking, decision making, problem solving, and combinations of these skills. Further, the study examined how bank employees perceive they acquired higher-order thinking skills.

Procedures and Data Source

A qualitative design was selected to gather data. Specifically, the behavioral event interview approach was used as it has been successfully used in both industrial and educational research (Boyatzis, 1982; Schmidt, Finch, & Faulkner, 1992). The behavioral event approach was selected as its purpose is to identify the necessary competencies of various jobs (McClelland, 1978). Further, it is designed to gather as many descriptive details as possible in the interviewees' own words. It allows for interviewing a few people in-depth to gain an understanding of thoughts, feelings, and behaviors.

A purposive sample of 27 bank employees were interviewed at nine branches of three large asset sized banks. At each of the nine branches, a branch manager, new account representative, and teller were interviewed. This sample provided a data base that adequately represented the banking environment since a consistency of responses from the interviewees emerged.

Each interview was tape recorded and then transcribed. *The Ethnograph* computer program was used to facilitate handling of the large quantities of text generated in the interviews. The printed version of the interviews was reviewed and segments of the text were classified or coded to denote an instance of each

higher-order thinking skill occurrence. These instances were a segment of an interviewee's response that represented a higher-order thinking skill according to the definitions used for this study. *The Ethnograph* facilitated grouping the instances into seven possible higher-order thinking skill categories. These were creative thinking, decision making, problem solving, creative thinking combined with decision making, creative thinking combined with problem solving, decision making combined with problem solving, and creative thinking and decision making combined with problem solving. The instances comprising each higher-order thinking skill were reviewed and recurring themes noted.

Results and Conclusions

The interviewees described 55 events or situations related to their customer service duties where they perceived they used higher-order thinking skills. Within these events, 62 instances of higher-order thinking skill use were identified. The environment examined by this study was structured due to the large asset size of the banks selected. Therefore, the interviewees may have been limited in the level of creative thinking, decision making, and problem solving that they could use. The instances of higher-order thinking skills relayed by the interviewees ranged from the simple to the complex level, with most somewhere in between these two extremes. For example one manager described a situation that required the use of decision making skills. In this instance, a teller had asked the manager for assistance with a customer who was upset because the teller had refused to cash a check. The teller believed the customer was using false identification. Based on observation of the customer and identification information the customer provided, the manager evaluated the situation and decided this was a case of fraud and did not cash the check.

One of the simpler higher-order thinking skill instances required creative thinking. It was relayed by a teller who recalled performing a task that was not part of the teller's job description. The teller telephoned elderly customers that had not been in the bank recently to determine if they had developed any problems that prohibited their getting to the bank. An example of a complex level higher-order thinking skill instance was provided by a branch manager. The instance was classified as combining creative thinking, decision making, and problem solving. The manager described an instance when a long-time customer was upset for being denied a car loan. The manager was able to creatively shift the customers debt level by offering a home equity loan to the customer. The manager decided the customer qualified for this type of loan and implemented this solution to solve the problem of the angry customer.

Two interrelated themes emerged from review of the 62 instances of higher-order thinking skill use. The first theme involved the generation of new ideas, determining the best alternative, implementing an alternative, or a combination of these in order to generate business or sales for the bank. The second theme involved the generation of new ideas, determining the best alternative, implementing an alternative, or a combination of these in order to solve a known problem.

None of the interviewees reported having taken coursework that emphasized higher-order thinking skill development. Eighteen of the interviewees attributed higher-order thinking skill development to experience. Two referred to educational experiences that impacted their higher-order thinking skill development. One interviewee described a riddle that required thought to solve. Five of the interviewees were uncertain how they acquired higher-order thinking skills.

Discussion

Bailey (1990, May) referred to a need for tomorrow's workers to possess a greater level of higher-order thinking skill development. Specifically, Bailey noted banking employees are no longer limited to opening accounts by gathering information such as names and addresses, from customers. Bailey concluded that banking employees must think and sell other products and services to customers. Evidence in support of Bailey's research was found in this study. Interviewees offered instances when they actually carried out the types of activities that Bailey identified as requiring greater levels of higher-order thinking skills. For example, a new account representative relayed a story about a customer who came into the bank to open a checking account. While opening the account, the employee uncovered information that led the new account representative to suggest other bank services and products. The suggestions led to a mortgage being written by the bank's mortgage company.

Previous research has suggested that higher-order thinking skills are used in work settings. This study provided real-life examples that illustrated higher-order thinking skill use in the customer service aspect of banking. Instances of creative thinking, decision making, problem solving, and combinations of these were identified in the events relayed by the interviewees. Further, the Carl D. Perkins Vocational and Applied Technology Education Act (1990) references the need for workers to possess thinking abilities. This study provides substance for this idea by identifying actual workplace instances of higher-order thinking skill use.

Based upon the findings of this study, educational focus is needed on higher-order thinking skill development. Banking employees believe higher-order thinking skills are necessary to perform their job well. However, higher-order thinking skills are not given adequate representation in the employees' education prior to employment. Further, despite the relatively large size of the banks, the employees, although experienced, did not report receiving any company sponsored training designed to develop higher-order thinking skills. Today's banking environment has become more customer service oriented, and customer service is believed to be critical to a bank's survival. Therefore, there is less room for costly mistakes that occur through the trial and error development of higher-order thinking skills.

Lambrecht (1992) and Willis (1992) refer to the popularity and advantages of teaching higher-order thinking skills within context using the infusion method. The instances of higher-order thinking skill use detailed in this study provide a base to build educational materials that facilitate teaching higher-order thinking skills with this method. Additionally, the actual workplace examples of higher-order thinking skills use identified in this study add to the psychological base of higher-order thinking skill development by providing real-life situations not previously identified that can be used as a basis for curriculum development, instructional reference, and further study.

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Identification of Factors that Contribute to or Impede Students' Learning in Microcomputer Applications Classes

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Abstract

This study was conducted to provide a better understanding of factors that influence students' learning microcomputer applications. Primary objectives were to identify factors that contribute to or impede students' learning microcomputer applications and determine if relationships exist between selected factors and students' success in learning microcomputer applications.

Students come to the first college microcomputer application classes with varying levels of prior computer experiences along with many other differences. While some students seem to succeed easily, others have difficulty. Results of this study, however, do not reveal any significant differences in students' success and their prior computer experience, age, year in school, keyboarding skill, requirement for course, and use of computers for preparation of other assignments.

Background

Few would question the claim that Americans are in the midst of a revolution that has been triggered by the invention of the computer. The computer has had a greater impact on society than any other device invented in the second half of the twentieth century (Duffy, 1992). As computers proliferate and impact every aspect of the nation, the U.S. is quickly becoming a computer-dependent society (Wentling, 1988). As society becomes more computer-dependent, it becomes increasingly more important for business teachers to provide the educational foundations for computer learning.

According to Furger, (1993) 200 million people use computers every day. In businesses across the country, CEOs and presidents as well as secretaries and middle managers use microcomputers to key their own memos, letters, and reports. John Hurley, President of the American Society for Training and Development, states that the country is state-of-the-art in technology development, but far from state-of-the-art in training workers to reap the benefits of that technology (Fernberg, 1993).

Not only is the business world in the midst of a revolution, but teachers and administrators in elementary, secondary, and post-secondary schools across the nation find they too are in the midst of a revolution. Teachers at all educational levels often feel the technology revolution is out of control. Often educators who feel unprepared for the task are expected to lead this revolution in the school. Learning new hardware, software, telecommunications, and other technological innovations has been difficult. Just trying to keep up with equipment and software updates seems impossible. Little time has been available for improving methods and/or strategies for teaching this technology.

In the past decade, microcomputer applications has moved from infancy to the number one subject being taught in many business education departments. Post-secondary business education departments throughout the country that just five years ago had no computer courses can today fill 10 to 15 sections of microcomputer applications classes each semester.

While this boom in enrollment for business education is great, there is also concern. Although business educators have restructured course offerings and changed course titles to reflect the use of computers to process information, little empirical data has been developed to provide a foundation from which to establish effective teaching methods.

This move to computer-based technology has not diminished the concern for effective teaching methods. Business teachers have long relied upon recognized principles for teaching traditional business subjects. Yet, the skill subjects of just 5 or 10 years ago, such as typing and shorthand, have practically disappeared. Teachers responsible for microcomputer classes cannot simply recall their college methods courses to brushup on methods and strategies for teaching computer-based curricula. The literature provides little assistance for business educators concerning teaching strategies for computer technology classes. Research has produced vast amounts of data about effective skill methodology in keyboarding/typewriting and shorthand. Unfortunately, there is a dearth of research in effective teaching methods for information processing subjects (Scriven, 1991).

Purpose of the Study

As business teachers continue to teach new computer technologies, research is needed to assist in the development of programs designed for student learning. The purpose of this study is to provide business teachers with a better understanding of factors that influence students' learning in microcomputer applications classes. This study will contribute to the establishment of a body of knowledge for teaching microcomputer applications.

Statement of Problem

The study will identify factors that contribute to or impede students' learning microcomputer applications and determine if relationships exist between selected factors and students' success in learning microcomputer applications. Specific research questions this study seeks to answer are:

1. Do students who have taken computer classes in high school perform better in the beginning computer applications classes in college than students who have had no computer applications experience?

2. Do students who have completed keyboarding/typewriting classes perform better in beginning computer applications classes in college than students who have had no keyboarding/typewriting experience?

3. Is there a relationship between students' ages and their success in microcomputer applications classes?

4. Is there a relationship between students' year in college and their success in microcomputer applications classes?

5. Do students who are not required to take computer applications courses perform better than students who are required to take the course?

6. Do students who use the computer to complete assignments for other classes perform better in microcomputer applications classes than students who do not use the computer for other class assignments?

7. Do students perceive the content of what they are learning in microcomputer applications classes as relevant learning for their future careers?

8. What teaching methods do students feel provide the best help for learning computer applications?

Procedures

Based on an extensive literature review and researchers' questions and beliefs concerning students' learning, a questionnaire was developed to obtain information from students currently enrolled in microcomputer applications classes. Students enrolled in the 3-hour microcomputer applications classes during the spring 1994 semester at a small midwestern university served as the sample.

To determine clarity of questions in the instrument, a pilot study was conducted using students in a one-hour introductory microcomputer applications course. Results of this survey were evaluated to determine if changes were needed in the survey instrument.

Limitations of Study

It cannot be claimed that students in this study are representative of all students taking microcomputer applications classes in other university programs. This study is intended to be a beginning point only, a point from which other studies can develop.

Data Collection

Students enrolled in 5 sections of microcomputer application classes in the Department of Administrative Services at Southeast Missouri State University during the Spring 1994 semester completed questionnaires. Two instructors each taught two sections and one instructor taught one section. Each instructor collected data for the section taught. Students recorded answers to selected questions on the questionnaire and coded remaining responses on computer scan sheets. Upon completion of the semester, instructors added the grade earned to each student's computer scan sheet. There were 129 usable questionnaires.

Data Analysis

The Statistical Package for the Social Sciences (SPSS) was used to generate frequencies and percentages for all questionnaire items. The subprogram CROSSTABs provided cross-tabulation analysis for questions used to determine relationships. The Chi-square statistic was used to determine statistical significance of relationships and Cramer's V coefficients were calculated to assess strengths of relationships. These two statistics identified relationships that could not have occurred by chance ($p<.05$).

Findings

Respondent Data

Respondents included 51 males and 78 females ranging in ages from under 20 to over 30. The largest number of respondents (70 or 54.3%) were in the 20 or under age group; 36 (27.9%) were between 21 and 25; and 14 (10.9%) were over 30.

A majority of respondents (85.3%) had experience using word processing software. This experience ranged from one year of word processing in high school to just a few weeks in some other course. Experience with spreadsheet software varied from 20 (15.5%) respondents who reported they had completed a one-year course in spreadsheet software applications to 47 (36.4%) who reported no experience with spreadsheet software. Eleven (8.5%) respondents indicated they had taken a one-year course in database applications; 83 (64.3%) respondents stated they had no database experience. While twenty (15.5%) respondents reported they had a good background in DOS, 64 (49.6%) reported no prior experience with DOS.

Approximately 35% of respondents spend 3 hours or less a week outside of class on computer application assignments, 43% spend

from 4 to 6 hours, and 15% spend from 6 to 9 hours. Thirty-five (27.1%) respondents spend less time on computer applications assignments than on other assignments, 42 (32.6%) spend about the same amount of time on computer application assignments, and 17 (13.2%) spend more time on computer assignments than any other class assignments.

Findings According to Research Questions

The first research question asked if students who have taken computer classes in high school perform better in the beginning computer applications classes in college than students who have had no computer applications experience. To answer this question, cross tabulation analysis was performed comparing students' success and prior computer experiences.

Two measures were used to determine students' success. The first asked respondents to indicate how they perceived their success; the second measure used grades earned by students. As shown in Table 1, 27 (20.9%) respondents felt they were successful with no difficulty; 71 (55.0%) perceived they were successful with some difficulty, and 21 (16.4%) felt they experienced an average success rate. Only 4 (3.1%) respondents indicated they had experienced great difficulty with their computer applications classes.

Table 1
Frequency and Percentage of Respondents' Description of Success in Computer Applications Classes

Description of Success	Frequency	Percentage
successful; no difficulty	27	20.9
successful; some difficulty	71	55.0
about average success	21	16.4
great difficulty	4	3.1
more successful than grade shows	5	3.9
not responding	1	.8
Total	129	100.0

The measure of students' success according to grades assigned revealed 48 (37.2%) A's, 44 (43.1%) B's, 25 (19.4%) C's, 4 (3.1%) D's, and 8 (6.2%) F's. In all cases, F's were received by students who stopped attending classes. While there was some discrepancy between A and B grades assigned and "successful with no difficulty" and "successful with some difficulty," other measures of success were very close.

Prior computer experience for respondents varied from no computer experience to more than one computer course. Twenty-six (20.2%) respondents had no prior computer experience while 55 (42.6%) had completed one computer course in high school or had part of a class in high school devoted to computer applications. Approximately 89% of respondents who had completed one course in high school, 72.7% who had completed part of a high school class, and 65.3% who had no prior experience in computer applications felt they were successful with little or no difficulty in computer application. No statistical significant differences exist between students' success as reported by students and by grades assigned and prior computer application experiences.

Research question 2 was designed to determine if students who have completed keyboarding/typewriting classes perform better in beginning computer applications classes in college than students who have had no keyboarding/typewriting experience. To answer this question, a cross tabulation was performed on questionnaire responses for students' success and prior keyboarding/typing experiences.

Results revealed that a majority of respondents (58.9%) had taken a one-year course in keyboarding/typewriting in high school with only 5 (3.9%) respondents reporting no prior keyboarding/typing experience. Of the 5 respondents reporting no prior keyboarding/typewriting experience, 4 indicated they had little or no difficulty with computer applications classes. There was no difference in success as reported by respondents and success as indicated by final course grade.

The third research question was to determine if a relationship exists between students' age and their success in microcomputer applications classes. Two cross tabulations were performed to answer this question. The first tabulation compared respondents' ages and their success on computer applications as perceived by respondents. Table 2 summarizes this tabulation. The second tabulation compared respondents' age and success according to grades earned in the course.

As shown in Table 2, 19 (27.5%) respondents in the 20 or under age group felt they were successful with no difficulty; in the 21 to 25 age group, 27 (75.0%) felt they were successful with some difficulty; and 3 (21.4%) respondents in the over 30 age group felt they were successful with no difficulty. The difference in perceived success and respondents' age groups was not statistically significant at the .05 level. When respondents' ages were compared with grades earned in the course, there was no significant difference.

Research question 4 sought to determine if a relationship exists between respondents' year in college and their success in microcomputer applications classes. To answer this question, success in computer applications as reported by respondents was cross tabulated with respondents' hours earned. A second tabulation compared respondents' year in college with grades earned in computer applications classes.

Sixty ((46.5%) respondents had 30 or fewer college hours; 40 (31%) had between 31 and 60; and 28 (21.7%) had over 60 credit hours. A majority of respondents (98) perceived that they had success without difficulty or success with little difficulty in microcomputer applications and a majority (92) received a final

grade of A or B. There was no statistical significant difference between year of enrollment in college and respondents' success as reported by respondents or indicated by final grade.

Table 2
Respondents' Perceived Success in Microcomputer Applications According to Age Group

Description of Success	20 or unde	21-25	26-30	over 30
successful; no difficulty	19 (27.5%)	3 (8.3%)	2 (22.2%)	3 (21.4%)
successful; some difficulty	34 (49.3%)	27 (75.0%)	5 (55.6%)	5 (35.7%)
about average success	14 (20.3%)	4 (11.1%)	2 (22.2%)	1 (7.1%)
great difficulty	1 (1.4%)	1 (2.8%)	0 (00.0%)	2 (14.3%)
more successful than grade shows	1 (1.4%)	1 (2.8%)	0 (00.0%)	3 (21.4%)

Research question 5 was to determine if students who are not required to take computer applications courses perform better than students who are required to take the course. To answer this question, respondent success in computer applications was cross tabulated with the questionnaire item asking if microcomputer applications was a requirement for respondents' majors.

Eighty-two (63.6%) respondents indicated that the microcomputer application class was a requirement for their major. Findings indicate that respondents who were not required to take microcomputer applications courses tended to be more successful than those who were required to take the course. Although there was no significant difference, 82% of respondents who were not required to take the course stated they were successful with little or no difficulty while 73% of respondents who were required to take the course felt they were successful with little or no difficulty. There was little difference in success as perceived by respondents and success as indicated by final grade earned in the class.

The next research question asked if students who use computers to complete assignments for other classes perform better in microcomputer applications classes than students who do not use computers to complete other class assignments. When respondents were asked to describe how often they use a computer to prepare assignments for other classes, only 10 (7.8%) respondents marked "almost never." Sixty (46.5%) respondents stated they occasionally use the computer for other class assignments, and 58 (45.0%) respondents reported they often use the computer to prepare assignments for other classes.

Findings revealed little difference in respondents' success and their use of the computer to complete assignments for other classes. Approximately 75% of respondents who use the computer often to complete assignments for other classes, 78% of respondents who occasionally use the computer to complete assignments for other classes, and 70% who never use the computer to complete assignments for other classes felt they were successful with little or no difficulty in microcomputer applications classes. There was little difference in success in class as reported by respondents and final grades earned by respondents.

Research question 7 sought to determine if students perceive the content of what they are learning in microcomputer applications classes as relevant learning for their future careers. When asked how they felt about their future use of information learned in the computer applications class, 59 (45.7%) respondents indicated they would use the information very often, and 44 (34.1%) indicated they would use the information often. Only 1 respondent reported the information would never be used.

Responses concerning perceived importance of computer technology in respondents' fields of study revealed that 59 (45.7%) respondents believe computer technology will be a major part of their fields of study; 51 (39.5%) believe computer technology will have a great impact on their fields of study, and 17 (13.2%) believe computer technology will have limited use or will not affect their fields.

Research question 8 sought to determine which teaching methods students feel provide the best help for learning computer applications. Findings reveal that 66 (51.2%) respondents learn best when working individually to complete their assignments, 30 (23.3%) respondents learn best when the teacher works through assignments with the class, and 27 (20.9%) respondents learn best when the teacher works similar activities with the class before making assignments.

When respondents were asked to describe reasons for their success or lack of success in computer applications classes, 68 (52.7%) indicated they were successful because they worked individually to complete their assignments. Thirty-one respondents reported they were successful because they had a good background before taking the computer applications class, and 17 (13.2%) respondents reported they could have been more successful had they worked harder to complete their assignments.

Conclusions

Although students come to the first college microcomputer application classes with varying levels of prior computer experiences along with many other differences, for this sample there is no significant difference between these factors and students' levels of success in microcomputer application classes.

Recommendations

The following recommendations are based on the data collected in this study:

1. This study should be repeated with a larger sample of more diverse students. Classes with greater variations of backgrounds, computer experience, keyboarding/typewriting experience, and ages are needed to determine relationships between these factors and students' success. More study is needed to determine factors that affect students' learning in microcomputer classes.

2. The expanding role of computers in the educational setting should be reflected in current research undertakings. Many programs and classes are developed with little foundation for decisions concerning teaching and learning processes in computer applications. A great deal of work is needed to develop guidance for effective teaching methods for computer applications and computer related learning.

3. Research must be on-going. As technological changes occur and students' experiences in computer technology change, new, up-to-date studies will be needed to keep research current. Teachers need more information about factors that influence students' learning and methods students perceive to best help the learning process.

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Image Alienation and Business Education: A Time for Consolidating Business Support (A Survey of Personnel Managers)

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Abstract

The primary objective of this study was to determine the impact that recent restructuring of management schemes has had upon the perception of the quality of the graduate of business education programs by personnel managers. Based upon a survey of 301 personnel managers in companies of varying sizes, it may be concluded that the workplace may not be of one dimension but of several depending upon the size of the company. There is a significant difference in the perceptions of personnel managers by company size in regards to preference for graduates, leadership image, and the degree of business support.

Business in Transition

Seismic changes have recently occurred in the workplace through the "downsizing" or "delayering" of management in companies of varying size and specialty. John A. Byrnes, in a recent cover story in *Business Week*, refers to the creation of the "horizontal corporation" whereby managerial hierarchy and department boundaries are being eliminated (December 20, 1993). M. Anthony Burns, Chairman of Ryder Systems, Inc., in the same piece refers to these seismic changes as the emergence of a "cultural transformation . . . a wave of the future" (p.77) Along the same line of thought, Lawrence A. Bossidy, Chairman of Allied Signal Inc., refers to dramatic gains to be expected in the near future as "we move to horizontally organized structures with a focus on the customer" (p.77). Other companies which are experimenting with restructuring for the purpose of implementing quality customization standards for products and services include A T & T, Eastman Kodak, General Electric, Motorola and Xerox.

Correspondingly, business educators across the country are facing a similar dilemma as to how to restructure their own secondary programs for meeting the changing needs of business. In view of this changing work environment, the question that arises is how much confidence does the "service-conscious" business manager have in the ability of business educators to prepare the kind of employee that meets the employment standards required in the newer "streamlined" organizational structures? In this regard, has the image of business education in the secondary school changed resulting in an alienation of personnel managers* based upon perceptions of past experiences with graduates coming from public school settings?

Research Questions

The concern with image becomes more of an issue today with the merging of computer technology, cable television systems, and telephony as new mechanisms for conducting business in the future are refined. With advancing technology expected to transform the marketing of goods and services into interactive personalized formats, the placement of employees into positions that support the dynamics of quick-response networks becomes more critical. Paul Finney, a New York writer who tracks important business developments, implies that newly hired workers are now expected "to handle not only routine tasks but also those considered professional" (*Newsweek*, 1993).

Therefore, the primary objective of this study was to focus upon determining the impact that recent restructuring of management schemes has had upon the perceptions of personnel directors/managers of the quality of the graduate of business education programs in terms of job-entry positions within office support functions.

The hypothesis tested was *there is no significant difference in the distribution of perceptions of personnel managers in large, midsize, and small companies according to preference for graduates, leadership image, and the sharing of expertise.*

Data Collection Strategy

A data-gathering instrument consisting of 11 items related to business education was sent to personnel managers in small, midsize, and large companies across the country. Individuals were requested to indicate their perceptions on a 5-point Likert-

* Note: The term *personnel manager* will be used to designate the work label *personal director/manager (or any other title of an individual with hiring responsibilities).*

type rating scale whereby a rating of 1 indicates strong agreement and 5, strong disagreement. The survey was randomly distributed to 100 personnel directors/managers in companies having over 500 employees; 100, in companies having between 101 and 499 employees; and 100, having 99 or fewer employees. Greenfield's reference, *The Facts on File Directory of Major Public Corporations*, was used for identifying companies for the study sample.

A total of 106 individuals responded to the survey instrument, representing approximately 35.3% of the 300 individuals in the sample population identified. The distribution of 106 sample responses reflected 32.1% (n=34) from large corporations, 37.7% (n=40) from midsize companies; and 30.2% (n=32) from small companies.

Statistical Analysis

The data collected was analyzed utilizing the Kruskal-Wallis non-parametric statistical test for determining whether the distribution of values reflecting perceptions of personnel managers were the same of each of the subgroups in the study. The 3 subgroups in the study consisted of those personnel managers in small, midsize, and large companies determined according to the number of employees (large=500+ midsize=100-499 small=99-). A .01 level of confidence was used to determine statistical significance of variables tested.

Findings

The data collected related to 11 items were grouped into 3 factors: preference for graduates, leadership image, and sharing expertise. The distribution of the responses for each of the 11 items on the survey instrument are depicted in Table 1 below. The findings are presented in both *aggregate format* and *by company size*.

Aggregate Perceptions of Personnel Managers

For each of the 11 items on the survey instrument, a considerable number of respondents had no opinion (a rating of 3 on the 5-point Likert Scale). (See Table 1, Col. 3.) Moreover, the frequency of perceptions of the respondents noted in Columns #4 and #5 in Table 1 generally indicate considerable disagreement with statements suggesting the existence of a "close" relationship between business and business education programs at the secondary level.

Preference for Business Education Graduates

Only 48 (45.3%) of the personnel managers (VAR=PREF) indicated a preference for business education graduates from secondary schools for entry level clerical positions in their companies. (See Table 1, Col. #1 & 2). However, 66 (62.3%) of the personnel managers (VAR=POSTSC) indicated that they prefer hiring post-secondary graduates. Consistent with the above perceptions, 15 (14.2%) felt that the caliber of high school business education graduates (VAR=CALIBR) is not the same as 5 years ago (Table 1,Col. #1 & #2). Finally, 46 (43.3%) perceived their companies as hiring fewer secondary school business education graduates (VAR=FHIRING) over the next 5 years. (See Table 1, Col. #1 & #2)

Leadership Image

In terms of leadership demonstrated by business education faculty at the secondary school level of education, only 17 (16.0%) of the respondents agreed that business teachers demonstrate excellent leadership (VAR=LDRS) in the field. (See Table 1, Col. #1 & #2). However, 49 (46.1%) of the personnel managers did not perceive leadership as being demonstrated by business education faculty (Table 1, Col. #4 & #5) with another 40 (37.7%) having no opinion relating to this trait (Table 1, Col. #3). Correspondingly, in terms of familiarity with local business education faculty, only 35 (33%) agreed that they were capable of identifying the names of at least 2 business teachers (VAR=NAMES) situated in any school in their local school district. (See Table 1. Col. #1 & #2).

Table 1
Frequency Distribution of Perceptions of Personnel directors
N = 106

Item/Var	SA 1	2	3	4	SD 5
Preference for Graduates					
Pref	14	34	45	10	3
Postsc	22	44	25	10	5
Calibr	3	12	40	41	10
FHiring	17	29	30	18	12
Leadership Image					
Ldrs	4	13	40	39	10
Names	12	23	25	25	21
Sharing Expertise					
Adopt	6	14	30	29	17
Advise	10	18	30	29	19
Funct	12	16	27	20	31
Cntcts	8	19	50	20	9
PC	8	25	34	23	16

Note: SA = Strongly Agree
SD = Strongly Disagree
Note: SA + A = Agreement References within Text (Col. #1 & #2)
SD + D = Disagreement References within Text (Co. #4 & #5)

Sharing Expertise

In terms of working with business faculty in the secondary schools, only 28 (26.4%) of the personnel managers (VAR=ADVICE) indicated awareness of employees participating on advisory boards of such programs. Similarly, only 20

(18.9%) of the respondents agreed that their company had formally adopted a business education program (VAR=ADOPT) at the secondary level. Such an adoption has been used for generating fundings and other kinds of support for local business education programs. In addition, 28 (26.4%) of the personnel managers agreed that they could identify at least one other employee in their company who had recently attended a special business education function (VAR=FUNCT) at their local school district. Interestingly, only 27 (25.5%) of the respondents agreed that their contacts with business faculty (VAR=CNTCTS) are fewer today than 5 year ago. (See Table 1, Col. # 1 & #2).

Comparing Perceptions By Company Size

The frequency of the distribution of the responses of the personnel managers grouped into small, midsize, and large companies were compared using the Kruskal-Wallis non-parametric statistical test. The resulting chi-square measures and probabilities are indicated in Table 2.

Preference for Graduates

The hypothesis that there is no significant difference in the distribution of perceptions of personnel managers in large, midsize, and small companies according to preference for graduates was accepted for three of the four variables in this factor (See Table 2.) There was a significant difference in the perceptions of personnel managers by company size regarding future hiring practices (VAR=FHIRING). From each subgroup of respondents, 22 personnel managers in large companies agreed with the statement that they will be hiring fewer secondary school business graduates over the next 5 years; only 8, from midsize and 16, from small companies agreed likewise (See Table 3.)

Leadership Image

The hypothesis that there is no significant difference in the distribution of perceptions of personnel managers in large, midsize, and small companies according to leadership image was rejected for one of the two variables in this factor. In terms of demonstrating leadership (VAR=LDRS), the hypothesis was accepted supporting the finding that personnel managers in each of the three subgroups had a similar perception of leadership on the part of business faculty; that being, 7 from large companies, 5 from midsize, and 5 from small companies agreed to acknowledging leadership ability of business faculty. However, interms of familiarity with business faculty (VAR=NAMES), the hypothesis was rejected. In this regard, 21 personnel managers from large companies perceived themselves of being capable of identifying at least two business faculty by their names whereas only 4 from midsize and 10 from small companies could do likewise. (See Table 3.)

Table 2
Significance of Differences in Frequency Distributions of Perceptions of Personnel Directors by Size of Company
N=106

Var	ChiSq	df	Prob.
Preference for Graduates			
Pref	4.0058	2	0.1349
Postsc	0.7062	2	0.7025
Calibr	3.5983	2	0.1654
FHiring	11.5360	2	0.0031*
Leadership Image			
Ldrs	1.0643	2	0.5874
Names	24.3530	2	0.0001*
Sharing Expertise			
Adopt	11.8640	2	0.0027*
Advise	28.4310	2	0.0001*
Funct	33.0550	2	0.0001*
Cntcts	13.5220	2	0.0012*
PC	19.8000	2	0.0001*

Note: *Significant at .01 level of Confidence

Sharing Expertise

The hypothesis that there is no significant difference in the distribution of perceptions of personnel managers in large, midsize, and small companies according to the sharing of expertise was rejected for each of the 5 variables in this factor. Company size was a significant factor in the perceptions of personnel managers for the variables relating to adopting a secondary school business program (VAR=ADOPT), to participating on advisory boards (VAR=ADVICE), to attending special functions with business faculty (VAR=FUNCT), to the frequency of contacts with business faculty (VAR=CNTCTS), and familiarity with computers used in business programs (VAR=PC). (See Table 2.) For each of these variables with the exception of CNTCTS (frequency of contacts), those personnel managers *in small and midsize* companies agreed to a significantly lesser degree to sharing expertise with business faculty. However, conversely, those personnel directors in small companies indicated to a greater degree that they perceived themselves as having less frequent contacts with business faculty than those in the midsize and large companies. (See Table 3.)

Conclusion

The data collected supports the contention that the confidence in business education faculty and the graduates of secondary school based programs may be eroding. Overall aggregate perceptions of business leaders on each of 10 of 11 variables (the exception is the VAR=POSTSC) appear to support the view-

point that a considerable number of personnel managers generally have less than favorable perceptions of current business education programs at the secondary level. It may similarly be concluded that business education faculty at the secondary level are not projecting a leadership image that promotes a willingness to form partnerships or to create formal ties between business and education. These less than favorable perceptions are consistently held by majority of personnel managers in large, midsize, and small companies.

The image of leadership currently being perceived by personnel managers is reflected in their inability to identify specific names of business faculty of local secondary schools. Although personnel managers situated in large companies appeared to be more likely to identify names of faculty and pc equipment used than those in midsize and smaller companies, there remains to be an inconsistent effort on the part of business education faculty to systematically seek input/ support directly from the business community. It should be noted that relatively few personnel managers (only 35 of 106) in the sample were capable of identifying the names of business faculty. This conclusion is also supported by the evidence collected depicting relatively few personnel managers perceiving the sharing of expertise by serving on advisory boards, adopting a local school program, etc., as a frequent occurrence.

Table 3
Frequency of Combined Strongly Agree and Agree Ratings of Personnel Managers by Company Size

Var	Size of Company Small* N=32	Mid-size* N=40	Large* N=34
Preference for Graduates			
Pref	19	14	15
Postsc	19	24	23
Calibr	4	8	3
FHiring	8	16	22
Leadership Image			
Ldrs	5	5	7
Names	10	4	21
Sharing Expertise			
Adopt	3	4	13
Advise	4	5	19
Funct	7	2	19
Cntacts	17	6	4
Pc	9	7	17

Note: Frequency counts indicate a total of strongly agree responses indicated by respondents to survey.

Time for a New Vision

Without a solid base of support among all companies, business education faculty (and corresponding programs) are very likely to be challenged as school administrators justify the expenditure of limited public funds for varying academic disciplines. With the evidence mounting of a changing workplace and the need for flexible, highly-productive workers, a new vision for business education must now emerge. With the tech-prep strategy now being the focus for federal vocational funding, business faculty may have the mechanism for creating a new vision at hand. With a critical need to re-establish the credibility of business faculty as true leaders in the employment preparatory marketplace, there is a corresponding need to create a new kind of excitement in occupational training.

With time of the essence, it is argued here that business faculty must quickly identify a catalyst (such as tech-prep) through which efforts to increase contacts with business leaders may occur. It is vital that business faculty take "to the offense" by formalizing closer ties with the business community as current programs are upgraded. In addition, a new vision must be consistent with the varying needs of large, midsize, and small companies--a very formidable challenge. The workplace may not be of one dimension but of several depending upon the size of the company. The issue of diversity of employment needs according to company size must be addressed if inroads are expected to be made for justifying the existence of business education in the public school setting. It is not the time for business faculty to "simply look in amazement" as to what is occurring in the workplace. It is not the time to reflect upon past accomplishments--many of which we are most proud. It is not the time to remain isolated from our base of support--the business community which hires our graduates.

It is not the time to simply accept a destiny suggested by those outside of business education. However, it is the time to take the initiative to create a new vision that brings business faculty closer to the business community. The evidence is quite clear. We as business educators must systematically bring the business community back to our programs by seeking their input and funding support. Without a significant commitment on the part of business faculty, the days of business education as an integral segment to public education will be numbered. It is urgent for business faculty throughout the nation to *demonstrate their leadership* and renew efforts to share their expertise with others for regaining the respect we so rightfully deserve.

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The Importance of Workplace Basics Competencies (SCANS) as Perceived by Business Teachers

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Abstract

The purposes of the study were to determine the importance of workplace basics competencies (SCANS) for business workers as perceived by business teachers in area vocational schools and comprehensive high schools and to compare the perceived importance of workplace basics competencies (SCANS) by both groups. The results of the survey of business teachers in Missouri area vocational schools and comprehensive high schools indicated that both groups have high perceptions regarding the importance of workplace basics competencies (SCANS) for business employees. Also, business teachers in both types of schools have similar views regarding the importance of workplace basics competencies (SCANS).

Introduction

From the local workplace to the global market, the explosive growth of technology is impacting business in this information decade. Many research studies have substantiated that the most important skills for employment are basic skills—reading, communicating, and computation. However, many employers continue to indicate that their employees do not have these basic skills.

Recent studies have found that employers are requiring their employees to have a higher level of technical skills in order to work successfully in the technologically-oriented, world-wide competitive business environment (Agency for Instructional Technology, 1992; Carnevale et al., 1988; Tuttle, 1988). In addition, young people must have a higher level of workplace basic skills to find and hold a job in today's workplace (Carnevale et al., 1991; Dole, 1989; U.S. Department of Labor, 1991).

The Secretary's Commission on Achieving Necessary Skills (SCANS) Report (U.S. Department of Labor, 1991) addressed "workplace know-how" and has captured the attention of educators, parents, and business leaders. The Commission examined the changes that have occurred in the world of work and the demands of the current workplace. They presented the national survey results concerning the importance of workplace basics competencies as perceived by employers and employees in 50 different occupations in business and industry. The results indicated that the five competency domains of "workplace know-how" (resources, information, interpersonal skills, systems, and technology) encompassed the 20 workplace basics competencies (SCANS) needed by employees. The Commission reported that students must master workplace basics competencies if they are to find and keep good jobs in today's job market. Also, the Commission concluded that the competencies are applicable from the shop floor to the executive suite and should be taught in an integrated fashion, reflecting the workplace context in which they are applied.

Today, schools, businesses, communities, and governments recognize the importance of educating students for career paths, the need for collaboration when preparing students for the workplace, and the significance of a smooth transition from school to work. Do business teachers perceive that workplace basics competencies are important? What is the perceived importance of workplace basics competencies by business teachers in area vocational schools and comprehensive high schools? How do business teachers impact the development of appropriate workplace basic skills within instructional time constraints?

Purpose

The purpose of the study was to determine the perceived importance of the workplace basics competencies (SCANS) for business workers held by business teachers in area vocational schools and comprehensive high schools. This information should help business teachers better prepare students for the workplace and thus close the gap between the classroom and the workplace.

This descriptive study was designed to answer the following research questions:

1. What is the perceived importance of workplace basics competencies (SCANS) by business teachers?

2. Are there significant differences in the perceptions of the importance of workplace basics competencies (SCANS) between business teachers in area vocational schools and comprehensive high schools?

Methodology

Data for the study were collected by a survey questionnaire. The questionnaire was adapted from the SCANS Report listing of the workplace basics competencies and included five competency domains: resources, information, interpersonal skills, systems, and technology. The Workplace Basics Competencies (SCANS) Questionnaire contained 27 items: 20 items concerning the workplace basics competencies, one comment question pertaining to respondents' perceptions of the three most important competencies, and six items for collecting demographic information.

The population consisted of business teachers in Missouri area vocational schools and comprehensive high schools. Because the population of business teachers in area vocational schools was limited (only 105 teachers), the entire population was used in the study. An equal number of business teachers (105) were randomly selected from the comprehensive high schools. The 210 business teachers teaching in area vocational schools and comprehensive high schools were sent questionnaires. One hundred forty-eight usable questionnaires (70.5%) were returned (Table 1).

Table 1
Number of Subjects Selected and Return Rates for the Study

	Type of School		
	Comprehensive High School	Area Vocational School	Total
Subjects	105	105	210
Usable returns	69	79	148
Usable return rates	65.7%	75.2%	70.5%
Unusable returns	3	5	8
Unusable return rates	2.9%	4.8%	3.8%
Total returns	71	85	156
Total return rates	68.6%	80.0%	74.3%

The independent variable for the study was the type of school—area vocational schools and comprehensive high schools. The dependent variables were the five workplace basics competency (SCANS) domains: resources, information, interpersonal skills, systems, and technology.

One related extraneous variable (gender of business teachers) was also analyzed. In addition, data relative to four items of demographic information were collected: location of schools, number of years of experience teaching business education, number of employer/employee contacts, and types of business courses taught.

Findings

The business teachers' importance ratings of the workplace basics competencies (SCANS) were high. The average rating of importance for the 20 competencies was 5.64 on a 7.0 scale. This rating was in the range between important (5) and very important (7). The competency rated most important by business teachers (mean = 6.49 on a 7.0 scale) was competency 9—"Participates as a member of a team—works cooperatively with others and contributes to group with ideas, suggestions, and effort" (Table 2). The competency domain rated most important by business teachers was the Information domain with a 6.11 mean rating of importance (Table 3).

Statistical analysis of the variances indicated that, overall, there was no significant difference in the perceptions of the importance of workplace basics competencies (SCANS) between business teachers in area vocational schools and comprehensive high schools (Table 4). The null hypothesis was tested by computing a one-way multivariate analysis of variance (MANOVA) with five dependent variables: resources, information, interpersonal skills, systems, and technology. The calculated p value was not significant, and the null hypothesis was not rejected. In addition, a point biserial correlation calculated between gender and each of the five SCANS domains revealed that the values were too low to be treated as a covariate in the study.

Table 2

Rankings of Workplace Basics Competencies (SCANS) by Business Teachers in Area Vocational Schools and Comprehensive High Schools

Competency	Area Voc. School		Comp. High School		Total	
	Mean	Rank	Mean	Rank	Mean	Rank
Competency Domain 1—Resources						
C1. Allocates Time —Selects relevant, goal-related activities; ranks them in order of importance; allocates time to activities; and understands, prepares, and follows schedules.	6.44	2	6.45	2	6.44	2
C2. Allocates Money —Uses or prepares budgets, including cost and revenue forecasts; keeps detailed records to track budget performance; and makes appropriate adjustments.	5.04	18	4.55	19	4.80	19
C3. Allocates Material and Facility Resources —Acquires, stores, and distributes materials, supplies, parts, equipment, space, or final products in order to make the best use of them.	5.22	16	5.32	14	5.27	16
C4. Allocates Human Resources —Assesses knowledge and skills and distributes work accordingly, evaluates performance, and provides feedback.	5.32	14	5.26	15	5.29	15
Competency Domain 2—Information						
C5. Acquires and Evaluates Information —Identifies need for data, obtains it from existing sources or creates it, and evaluates its relevance and accuracy.	5.89	8	5.80	8	5.84	8
C6. Organizes and Maintains Information —Organizes, processes, and maintains written or computerized records and other forms of information in a systematic fashion.	6.32	4	6.26	6	6.29	5
C7. Interprets and Communicates Information —Selects and analyzes information and communicates the results to others using oral, written, graphic, pictorial, or multi-media methods.	5.99	7	5.90	7	5.95	7
C8. Uses Computers to Process Information —Employs computers to acquire, organize, analyze, and communicate information.	6.30	5	6.44	3	6.37	4
Competency Domain 3—Interpersonal Skills						
C9. Participates as a Member of a Team —Works cooperatively with others and contributes to group with ideas, suggestions, and effort.	6.46	1	6.52	1	6.49	1
C10. Teaches Others —Helps others learn.	5.77	9	5.64	9	5.71	9

(table continued)

	Competency	Area Voc. School Mean	Area Voc. School Rank	Comp. High School Mean	Comp. High School Rank	Total Mean	Total Rank
C11.	Serves Clients/Customers —Works and communicates with clients and customers to satisfy their expectations.	6.42	3	6.41	4	6.41	3
C12.	Exercises Leadership —Communicates thoughts, feelings, and ideas to justify a position; and encourages, persuades, convinces, or otherwise motivates an individual or group, including responsibly challenging existing procedures, policies, or authority.	5.44	12	5.23	16	5.35	13
C13.	Negotiates to Arrive at a Decision —Works towards an agreement that may involve exchanging specific resources or resolving divergent interests.	5.56	10	5.45	11	5.51	11
C14.	Works with Cultural Diversity —Works well with men and women and with a variety of ethnic, social, or educational backgrounds.	6.25	6	6.27	5	6.27	6
Competency Domain 4—Systems							
C15.	Understands Systems —Knows how social, organizational, and technological systems work and operates effectively within them.	5.31	15	5.36	12	5.34	14
C16.	Monitors and Corrects Performance —Distinguishes trends, predicts impact of actions on system operations, diagnoses deviations in the function of a system/organization, and takes necessary action to correct performance.	5.13	17	4.84	17	4.99	17
C17.	Improves and Designs Systems —Makes suggestions to modify existing systems to improve products or services, and develops new or alternative systems.	4.84	20	4.52	20	4.69	20
Competency Domain 5—Technology							
C18.	Selects Technology —Judges which set of procedures, tools, or machines, including computers and their programs, will produce the desired results.	5.42	13	5.33	13	5.38	12
C19.	Applies Technology to Task —Understands the overall intent and the proper procedures for setting up and operating machines, including computers and their programming systems.	5.53	11	5.51	10	5.52	10
C20.	Maintains and Troubleshoots Technology —Prevents, identifies, or solves problems in machines, computers, and other technologies.	4.87	19	4.80	18	4.84	18

Table 3
Means and Standard Deviations of Perceived Importance Ratings of the SCANS Domains by Business Teachers

Domain	Type of School: Comprehensive High School — No. of Items	Sample (N)	Mean (SD)	Type of School: Area Vocational School — No. of Items	Sample (N)	Mean (SD)
1. Resources	4	79	22.01 (SD=4.40)	4	69	21.59 (SD=4.12)
2. Information	4	79	24.49 (SD=3.75)	4	69	24.41 (SD=3.30)
3. Interpersonal Skills	6	79	35.91 (SD=5.16)	6	69	35.53 (SD=4.21)
4. Systems	3	79	15.28 (SD=3.25)	3	69	14.72 (SD=3.45)
5. Technology	3	79	15.84 (SD=3.42)	3	69	15.64 (SD=3.68)

Note. Domain 1 includes four competencies, domain 2 includes four competencies, domain 3 includes six competencies, domain 4 includes three competencies, and domain 5 includes three competencies.

Table 4
Summary of Multivariate Analysis of Variance (MANOVA) for Business Teachers' Perceptions

Source	Pillai's Trace	DF	F	Pr>F
School	.00986838	5	141	.9229

Analysis of the descriptive data collected also provided the following results:

1. Nearly two-thirds (65.5%) of the business teachers reported that they teach in rural areas.
2. While the actual list of business teachers provided by the Department of Elementary and Secondary Education revealed that the percentage of female and male teachers was approximately 80% and 20% respectively, a high percentage (90.5%) of the business teachers that responded to the questionnaire were female.
3. The mean number of years of teaching experience for business teachers is 16.6 years; the mode is 15 years.
4. Nearly three-fourths (73.7%) of the business teachers made contact with business/industry employers and/or employees on a semi-annual or more frequent basis.
5. Over one-half (59.6%) of the business teachers indicated that they teach both business skills and basic business courses.

Conclusions and Recommendations

Business teachers in area vocational schools and comprehensive high schools have a high perception regarding the importance of workplace basics competencies (SCANS). The results of this study are consistent with the SCANS Report (U.S. Department of Labor, 1991) concerning the importance of workplace basics competencies (SCANS) for business and industry employees as perceived by employers and employees. The data imply that business teachers believe the 20 workplace basics competencies (SCANS) are important and need to be integrated into their program curricula to better prepare students to enter and succeed in the workplace.

Both groups of business teachers tend to share many common perceptions concerning the relative importance of the workplace basics competencies (SCANS). The lack of a significant difference between the perceived importance of the workplace basics competencies (SCANS) imply that Missouri business teachers in area vocational schools and comprehensive high schools have similar perceptions concerning the importance of the workplace basics competencies (SCANS) (Tables 2 and 3). However, there are apparently several major differences between area vocational schools and comprehensive high schools, such as goals and ob-

jectives, teaching methodologies, curricula, and students served. These differences raise questions that need to be addressed in additional research studies. The researchers concluded that the workplace basics competencies (SCANS) are applicable to business students in both area vocational schools and comprehensive high schools even though the program goals and breadth of offerings may differ between the two types of schools.

Teacher educators need to give special attention to developing effective strategies for teaching workplace basics competencies (SCANS). Appropriate instructional/learning strategies should be integrated into business teacher education professional development programs for both prospective teachers and those already involved in the profession.

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Information Processing Programs--Factors Most Influential in this Educational Choice

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Abstract

This study investigated factors that influence students to choose two-year information processing programs as their major field of study. A chi square test of significance found one significant discriminant function which accounts for 89.33% of the between-major variability in discriminating between majors. This function separated Major I from Majors II and III. Media and institutional have the highest absolute values in both the univariate F-ratios and the structure coefficients. Using the structure matrix the highest loadings were media, institutional reputation, and personal. Media factors loaded negatively while institutional loaded positively. This function appears to represent internal versus external influencing factors. The total number of correctly classified majors was 152/265 or 57.36% success rate. The computer information major had 67.4% (64/95) correctly classified, the office information major had 62.9% (61/97) and the court reporting major had 37% (27/73) correctly classified majors.

Introduction

What influences individuals to make particular educational or career choices? Which factors play a role in the ultimate educational decisions of an individual? Since selection of a field of study is the core of a career choice, there is a definite need for a clear understanding of the factors that influence people in making educational decisions, especially in careers with rapid technology changes.

Cox, (1980), in a study of proprietary school students, found that most of the students' information about the schools came from parents, family, friends, relatives, reputation of school, past graduates and advertising by the school. Factors that most influenced students' decisions to enroll in the various schools and programs were quality of training received and cost of programs. Students also indicated "higher quality programs" and "high placement rate" were among the major reasons for selection of the school.

In a study by Alden and Seiferth (1979), subjects were asked to rank order persons they perceived as having influence on their career choices. Results showed that students ranked "parents, classmates/friends and teachers first, second and third respectively, with counselors and siblings in the last two places." In research by Book (1985), about one-half of the participants reported their education and career choices were made because persons they respected encouraged them to enter that particular field.

Splete and Freeman-George (1985) said that young adults, ages 18-24 in particular, have difficulty making these decisions because of various pressures and influences to which they are routinely subjected. According to Vance and Schlechty (1982), young adults not only encounter many difficulties in choosing a career but frequently, once one is chose, have problems and must reevaluate their decision. They further stated that usually this may necessitate making a change in their field of study. Influencing factors are at work, some consciously and some subconsciously, but these factors are working to offset the decision (Vance & Schlechty, 1982). In many instances, these factors are such subtle, routine events in an individual's life that one does not really realize that they are an influence on major decisions such as educational or career choices (Splete & Freeman-George, 1985). The factors (personal, social and environmental) not only affect the educational and career decisions in a positive manner but many times influence incorrect or poor choices (Vance & Schlechty, 1982).

In conducting extensive research on gender, Post-Kramer and Smith (1985) determined that gender does influence educational and career decisions. Women still continue to train for work in the same four categories of social work, nursing, teaching and office work while men still work in areas related to math and science.

Students today need to choose a career that meets the needs of an ever-changing society. They have freedom of choice in education and freedom of choice in employment (Crow, 1981). Students need to be aware of the education, training, and skills that can increase their employment opportunities and prepare them for a world of technology and changing career needs (Cross, 1981). According to Feingold (1984), educational institutions and business/industry must educate people for information processing in the labor market while teachers, counselors, administrators, and directors of educational institutions will be change agents that provide students with information on job opportunities for the future.

According to Gonzenbach (1990), career goals developed by students are believed to have an effect upon eventual educational and occupational achievements. This study sought to examine the decisions affecting career goals of students. It intended to address why students in information processing programs select certain specific career fields.

Statement of the Problem and Research Questions

The problem of this research was: What factors influence student choice of and satisfaction with a two-year information processing major? Answers to these specific research questions were sought:

1. What were the demographic characteristics of each major in this study sample on the selected variables of:

   a. age
   b. gender
   c. marital status
   d. employment status
   e. job relationship to information processing
   f. community size
   g. education level of father/male guardian, mother/female guardian, or spouse/mate
   h. academic classification

2. Was there a difference among students majoring in computer information processing, office information processing, and court reporting on the following factors:

   a. family influence
   b. peer influence
   c. faculty/staff influence
   d. media influence
   e. program/institution satisfaction
   f. job related
   g. personal
   h. satisfaction with program

Review of Literature

A research study done by Vitell, Wiese, Singhapakdi, and Scherer (1990) involving the factors that impinge upon career choice found that a variety of variables influence this decision. These include genetic factors, educational environment, work history, current work situation, family work/non-work history, and the individual's personality. They further indicated that an individual's career choice is an extension of his or her personality and that people attempt to implement their personality through their career choice. Gehrt (1990) found that the primary influencing agent in making a career choice is the individual himself or herself.

Lucas (1985) determined that factors making the greatest impact on Middle Tennessee secondary schools career choices were: selected friends, mothers, fathers, and vocational teachers. Salary was given as the primary reason for not choosing certain careers. Educational requirements and working conditions were selected as the next most important career decision making factors.

According to Chacko (1991), professions are attractive for a wide variety of reasons, including money, prestige, aptitude, lifestyle and the work environment. A student's choice of a major field is also influenced by many factors. Gottfredson (1981) determined that the major vocationally relevant elements are gender, social class background, intelligence, and vocational interests, competencies, and values. Austin (1977) found that gender, race, academic ability, major field of study, the environment, and college selectivity or prestige were listed as very influential factors regarding career outcome.

Luckey (1974) and Borow (1984) made a strong case for the impact of family influence on personal and career development. Family influence is clearly evident as a student completes secondary school and either takes a job or pursues further education. Splete (1985) composed a list of family oriented influence factors: the geographic location of a family; genetic inheritance; family background; socioeconomic status; composition of families; parenting style; parental work-related attitudes; and lifestyle. According to Goodale and Hall (1976), perhaps the most subtle influence on a student's educational and occupational plans is their parents' work values. A report by Daniels (1983) indicated the importance of both parents and peers in the career decision-making process. Reschke and Knierim (1987) discovered that 42% of students perceive that their parents give specific career advice while only 20% of parents perceive that they give specific career advice. Data further indicated that parents, usually the mother, are perceived as the most influential people in a student's choice of a major.

Research Procedure

This study was conducted at a major midwestern university by distributing a questionnaire to each associate degree program in computer information processing, office information processing, and court reporting during spring semester, 1992. The questionnaire was based on a review of the literature. Permission to use a portion of an instrument developed by Nikravan (1986) entitled "Factors That Influence a Student's Decision to Choose a Two and/or Four Year Technical Program" (Cronbach Alpha reliability coefficient of .8435) was granted. Part I consisted of demographic questions; Part II contained questions relating to degree of influence of specific factors on student education/career choice; part III questions related to degree of satisfaction with the chosen major/institution. A panel of five judges from information processing education reviewed the questionnaire, and changes were made from their input. The final instrument resulted in a reliability coefficient of .9022.

The instrument was administered to information processing classes by the primary investigator. Instructions for completion of the questionnaire were given orally to each class. After re-

ceiving 278 completed questionnaires (out of a possible 310), a questionnaire and answer sheet were mailed to the remaining 32 students. This procedure resulted in 10 additional responses for a total of 288 respondents (93% return). Students marked responses on machine-readable answer sheets. Research Question 1 was answered using descriptive statistics, and Research Question 2 was answered using discriminant analysis. Analysis of the data was completed using the Statistical Analysis System—Version 6.01 and SPSS—Version 4.1 at the Computing Center of Southern Illinois University at Carbondale.

Selected Findings

In answering Research Question 1 descriptive statistics were used for each variable.

Age

Student responses by major and age range is shown in Table 1. The most frequently occurring age category in Major I, computer information processing, (44 respondents or 44.9%) and III, court reporting, (39 respondents or 52.7%) was the 19-21 year range while in Major II, office information processing, the most frequently occurring age category was 25 and over (40 respondents or 40.4%). The second most frequently occurring age category for Major II, office information processing, was the 19-21 year range (39 respondents or 39.4%). The least frequently occurring range for all three majors was 18 and under.

Table 1
Frequencies and Percentages of Total Student Respondents by Major and Age Range

Age Range	Major I		Major II		Major III	
	n	Percent	n	Percent	n	Percent
18 and under	5	5.1	3	3.0	7	9.5
19-21	44	44.9	39	39.4	39	52.7
22-24	27	27.6	17	17.2	14	18.9
25 and over	22	22.4	40	40.4	14	18.9
Total	98	100.0	99	100.0	74	100.0

Gender

Student responses by major and gender are shown in Table 2. Major I has a larger number of males (55 respondents or 56.1%) than females (43 respondents or 43.9%) while Major II (97 respondents or 99%) and Major III (73 respondents or 98.6%) were predominately female.

Table 2
Frequencies and Percentages of Total Student Respondents by Major and Gender

Gender	Major I		Major II		Major III	
	n	Percent	n	Percent	n	Percent
Male	55	56.1	1	1.0	1	1.4
Female	43	43.9	97	99.0	73	98.6
Totals	98	100.0	98	100.0	74	100.0

Marital Status

Student responses by major and marital status are shown in Table 3. "Single" was the most frequently occurring category for all three majors (83 respondents or 84.7% of Major I, 58 respondents or 58.6% of Major II and 61 respondents or 82.4% of Major III). "Married was the second most frequently occurring category for all majors. Major II was the only major to have respondents in all five categories.

Table 3
Frequencies and Percentages of Total Student Respondents by Major and Marital Status

Marital Status	Major I		Major II		Major III	
	n	Percent	n	Percent	n	Percent
Single	83	84.7	58	58.6	61	82.4
Married	12	12.2	24	24.2	9	12.2
Separated	0		4	4.0	0	
Divorced	3	3.1	12	12.1	4	5.4
Widow/Widower	0		1	1.0	0	
Total	98	100.0	99	100.0	74	100.0

Community Size

The number of students by major and size of hometown is shown in Table 4. The most frequently occurring community size for respondents from Major I was a population of 25,000 or more (37 or 37.8%), while Majors II (33 or 33.3%) and III (23 or 31.1%) each had the largest number of respondents from a community with a population of 2,501 to 9,999. Major I (15 or 15.3%) and Major III (13 or 17.6%) had the fewest respondents from communities of 2,500 or less, while Major II had the fewest respondents from communities of 10,000 to 24,999 (19 or 19.2%).

Table 4
Frequencies and Percentages of Total Student Respondents by Major and Community Size

Community Size	Major I		Major II		Major III	
	n	Percent	n	Percent	n	Percent
25,000 or more	37	37.8	25	25.3	16	21.6
10,000-24,999	19	19.4	19	19.2	22	29.7
2,501-9,999	27	27.6	33	33.3	23	31.1
2,500 or less	15	15.3	22	22.2	13	17.6
Total	98	100.0	99	100.0	74	100.0

Educational Level of Father/Male Guardian, Mother/Female Guardian, and/or Spouse/Mate

The educational level of father, mother, and spouse/mate is indicated in Tables 5, 6, and 7. Fathers' and mothers' educational level of high school graduate/GED test was the most frequently occurring response for all three majors. Major I had 32 (34.4%), Major II had 32 (33.3%) and Major III had 34 (47.2%) of the respondents listing high school graduate as father's education level while Major I had 43 (45.7%), Major II had 36 (37.1%), and Major III had 48 (65.8%) of the respondents listing high school graduate as mother's educational level.

Student responses by major and father/male guardian's education are shown in Table 5. The highest response rate for the spouse/mate category was seen in Major I with a four-year college degree (32 respondents or 34.9%). The most frequently occurring response regarding spouse/mate education for Major II was high school/GED (13 respondents or 32.7%). Major III had two categories with equal most frequently occurring responses, high school/GED and two-year college (7 respondents or 30.4%).

Table 5
Frequencies and Percentages of Total Student Respondents by Major and Fathers/Male Guardian Education

Educational Level	Major I		Major II		Major III	
	n	Percent	n	Percent	n	Percent
Less than high school	17	18.3	25	26.0	6	8.3
High school or GED graduate	32	34.4	32	33.3	34	47.2
Technical school/ two-year college degree	12	12.9	17	17.7	10	13.9
Four-year degree or bachelor's degree	21	22.6	13	13.5	13	18.1
Education beyond bachelor's degree	11	11.8	9	9.4	9	12.5
Total	93	100.0	96	100.0	72	100.0

Table 6
Frequencies and Percentages of Total Student Respondents by Major and Mother/Female Guardian Education

Educational Level	Major I		Major II		Major III	
	n	Percent	n	Percent	n	Percent
Less than high school	13	13.8	23	23.7	5	6.8
High school/GED	43	45.7	36	37.1	48	65.8
Two-year college	13	13.8	20	20.6	9	12.3
Four-year college	16	17.0	11	11.3	8	11.0
Education beyond bachelor's degree	9	9.6	7	7.2	3	4.1
Total	94	100.0	97	100.0	73	100.0

Table 7
Frequencies and Percentages of Total Student Respondents by Major and Spouse/Mate Education

Educational Level	Major I		Major II		Major III	
	n	Percent	n	Percent	n	Percent
Less than high school	3	7.0	0		1	4.3
High school/ GED	12	27.9	13	32.7	7	30.4
Two-year college	9	20.9	10	20.4	7	30.4
Four-year college	15	34.9	13	26.5	5	21.7
Education beyond bachelor's degree	4	9.3	10	20.4	3	13.0
Total	43	100.0	46	100.0	23	100.0

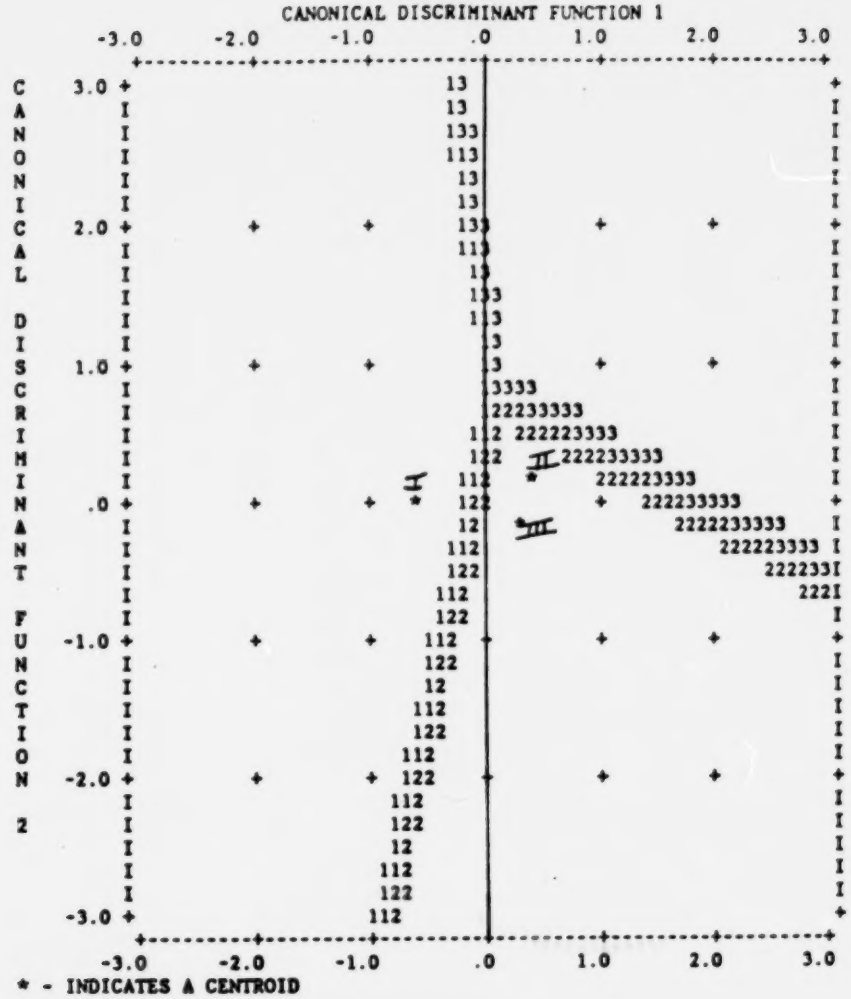
Note: Missing: Major I, 55; Major II, 50; Major III, 51.

A discriminant analysis on the data sets was performed. A Chi square test of significance was performed to determine if there was at least one significant discriminant function. This resulted in a Chi square of 55.66,P<.05. The second Chi square test of significance was performed to see if there were any significant functions remaining after removing the first. These results were not significant since P>.05. The Chi square value was 6.40,P=.494. Therefore, there was one significant discriminant function which accounts for 89.33% of the total discriminating power.

This function separates Major I from Majors II and III. The territorial map in Figure 1 illustrates this distinction between groups.

A direct discriminant function analysis was performed to assess prediction of membership in each of the three majors, using the variables identified in this study. The computer information major had 67.4% correctly classified, the office information major had 62.9%, and the court reporting major had 37% correctly classified (Table 8). It should be noted that by chance alone, the prediction success rate for each group would have been 33.33%.

FIGURE 1
TERRITORIAL MAP
CANONICAL DISCRIMINANT FUNCTION 1



I = Major I—Computer Information Processing
II = Major II—Office Information Processing
III = Major III—Court Reporting

Table 8
Classification Results

Actual Group	No. of Cases	Predicted Group Membership 1	2	3
Group 1	95	64	26	5
		67.4%	27.4%	5.3%
Group 2	97	26	61	10
		26.8%	62.9%	10.3%
Group 3	73	21	25	27
		28.8%	34.2%	37.0%
Ungrouped Cases	16	10	4	2
		62.5%	25.0%	12.5%

Univariate F tests were performed to test the significance of each influencing factor in accounting for the between-group variability. Two of the eight factors significantly separated the majors ($P<.05$). These were media influence and program/institution's reputation factors. These results are indicated in Table 9.

Table 9
Results of Discriminant Function Analysis

Predictor Variable	Loadings	Discriminant Function Coefficients	Univariate F (2,262)
A--family influence	.146	.253	.95
B--peer influence	.048	.307	.27
C--faculty/staff influence	-.109	-.212	.74
D--media influence	-.350	-.658	3.79*
E--program/institution	.681	.908	12.74*
F--job related	.059	-.254	.11
G--personal	.316	.138	2.76
H--satisfaction	.289	.213	2.41
Canonical R	.4165		
Eigenvalue	.2099		

*-significant at the .05 alpha level

A chi square test of significance resulted in one significant discriminant function. Using a cutoff of .3, three influencing factors (variables) loaded on this function--enrollment, personal factors, and media. Therefore, this function appeared to represent self-controlled (personal) versus external influencing factors (media influence).

Table 10
Means of Each Major for the Three Important Predictors

Major	n	Mean (Media)	Mean (Institutional)	Mean (Personal)
I	95	1.74	2.51	2.93
II	97	1.45	2.99	3.15
III	73	1.51	3.10	3.23

Other information

1. Employed students generally held positions that were unrelated to information processing.
2. The largest percentage of respondents was classified at the junior level.
3. Most influence on a career decision from a family member was given by the mother.
4. Spouse had the least amount of influence on a student's career decision.
5. Peers had minimal influence on a student's career decision.
6. High school teachers had the highest influence on a career decision among all faculty/staff personnel.
7. The highest percentage of media influence on career decisions came from the institutional catalog.
8. Location of the institution was the most important factor for enrolling at this particular institution.
9. All job related factors on a career decision were important, with monetary rewards having the largest percentage of high responses.
10. The highest percentage of responses on the influence of personal factors were on the student's academic abilities potential.
11. The largest percentage of respondents said they would select the same major at this institution if they had to make their educational decision again.

Conclusions

Based on demographic data and the findings of this study the following conclusions may be made:

1. The decision to choose a particular information processing major was influenced by gender. Females are showing a greater degree of interest in the male-dominated major of computer information processing than males are in the female-dominated majors of office information processing and court reporting.
2. The size of community a student is from had little influence on a decision to enter an information processing program.
3. Media influence, program/institution's reputation, and personal factors strongly influence a student to enter a two-year information processing program.
4. Family members and peers had only minimal influence on a student's educational/career decision.
5. Students entering a male-dominated career (computer information processing) were influenced by external factors (media) while those entering female-dominated careers (office information processing and court reporting) were influenced by internal factors (personal and institutional reputation).

Recommendations

Based on data analyses, the following recommendations were made:

1. This study should be replicated at the secondary level to determine what a student's educational goals are and the factors that will influence these decisions.
2. This study should be replicated at a four-year college or university to determine the factors that influence students to choose a four-year information processing major rather than a two-year major.

3. Additional research should be conducted to examine counselors and family perceptions on factors that influence a student's career decision.

4. Additional research should be conducted to examine factors that generate gender stereotyped attitude toward career choices in traditionally male/female-dominated areas.

5. Guidance counselors and faculty should be make more aware that gender stereotyping is still prevalent. They need to encourage more equal distribution of male and female enrollment in all classes.

6. Male and female secondary students' perceptions should be improved by making courses and course titles more attractive to both genders.

7. Professional organizations should promote workshops, seminars, and conferences for educators and counselors to promote awareness of factors that influence career decisions.

8. Additional counseling should be given to court reporting majors prior to their career decisions.

9. This study should be replicated with first year students to determine if results would differ without having been enrolled in the major for a period of time.

10. This study should be replicated with different variables that might better predict group membership in court reporting.

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Integrating Academic and Vocational Education: An Examination of Business Teachers' Roles

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Abstract

This research built upon a two-year field study that focused on teachers' roles in the integration of academic and vocational education conducted by Schmidt, Finch, and Faulkner in 1992. A total of 109 interviews were conducted at 10 secondary school sites. Of these interviews, 30 were conducted with business teachers. The analysis of the 30 business teacher interviews serves as a starting point for creating a conceptual framework that describes more specifically secondary business teachers' roles in the integration of academic and vocational education.

Problem and Objectives

Despite the current emphasis on integrating vocational academic education, specific knowledge, skills, and attitudes business teachers need to achieve such integration have received little attention. Numerous factors influence the educational environment and instructional methods favored by a teacher (Jansen & Oltjenbruns, 1990). However, traditional approaches that teachers perceive as most readily available and most effective tend to be those most likely to be used by them. Simply advising, or even legislating, that teachers must integrate vocational and academic instruction will not achieve the desired effect. Rather, it is first important to understand the contexts within which integrating academic and vocational education takes place and, building upon these contexts, determine business teachers' roles in this process. Our research, which is one of several National Center for Research in Vocational Education (NCRVE) studies focusing on integration, addressed directly the above need by examining the roles of business teachers in integrating academic and vocational education (Schmidt, Finch, Faulkner, 1992).

Method and Types of Data Collected

Gathering information about the contexts within which integration occurs and interactions among professionals necessitated the use of qualitative research techniques. Initially, a national search was conducted to identify public secondary schools that were actively and successfully integrating academic and vocational education. Nominations were sought from the 50 states and from several nationally recognized leaders in the integration movement. From the schools nominated, 10 secondary sites including magnet schools, academies, comprehensive high schools, and technical centers located in 10 different states, were ultimately selected to participate in the study.

A face-to-face interview, supplemented by researchers' observations of activities in the school, was used as primary means of obtaining field data. A three-part semistructured interview schedule was developed to interview business teachers and others at participating school sites. A key element of the interview schedule was the Behavioral Event Interview (BEI). Developed by McClelland (1978) at McBer and Company, the BEI is based on the Critical Incident Technique created by Flanagan (1954). The BEI is designed so that a particular event can be explored until behaviors, thoughts, and feelings are adequately described (McClelland, 1978). The BEI has had a successful history of being used in a variety of settings including business, industry, education, and the military (Goleman, 1981; Spence, 1979; Huff, Lake, and Schaalman, 1982; Finch, Gregson, and Faulkner, 1991).

Interviewees were asked to recall two events related to the integration of academic and vocational education. For the first event, interviewees were asked to recall an event they felt very positive about. For the second event, interviewees were asked to recall a time when, due to the power of hindsight, they would change what was done. Interviewee statements included in the events were organized into underlying themes and arranged into knowledge, skills, and attitudes groups. From this information base, a set of business teachers' role statements was developed and an implementation framework and procedures were prepared.

Conclusions

From the more than 30 interviews with business teachers, statements were organized into six themes including cooperative efforts, curriculum strategies, instructional strategies, administrative practices and procedures, student outcomes, and teacher outcomes. Roles including knowledge, skills, and atti-

tudes associated with business teachers who integrate academic and vocational education were identified and organized around these themes. The set of role statements with accompanying implementation framework and procedures have implications for teacher educators, administrators, supervisors, and others who are engaged in the initial preparation and further professional development of business teachers. These include significant changes in the ways business teachers are prepared and professional development programs are organized and operated.

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International Business Competencies Considered Important by *Fortune's* Global 500 Firms

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Abstract

This study identified the international business competencies considered important for secondary business students studying international business. A modified Delphi study was used. Human resource managers from US-based "Global 500 Firms" served as panel members. Consensus by the panel was reached in rating 48 competencies as important and 2 competencies as unimportant for secondary business students studying international business. The panel did not reach consensus but considered 4 competencies important. The competencies will assist business educators in developing appropriate curricula, activities, and resource materials to meet more effectively the needs of today's global businesses and industries.

Introduction

Business education has long provided education **for** and **about** business to secondary students. Certainly with today's technological advancements, transportation modes, and expanding communication media, the importance of business education has not diminished but a new importance for international business education has evolved.

Review of Related Literature

Today American firms are marketing their products globally, with many becoming multinational in scope. Foreign firms are teaming with American firms in joint ventures as well as independently conducting business in the United States. This trend of a global marketplace will be fueled by improvements in technology, communication, and transportation (Boyd, Ford, & Lewis, 1990). The economic and political changes of the Soviet Union, Eastern Europe, and European Economic Community (Moore, 1992) and the maturity of Asian economies (Budai, 1992) have accelerated the globalization of the world's business scene as well.

Our shrinking world marketplace is bringing business people from around the globe together. More people are employed by firms where they must deal daily with people from different cultures, value systems, business practices, and work attitudes (Varner & Alexander, 1984). To maintain competitiveness in this shrinking world market, businesses need employees with business skills and global perspectives (McCaslin, 1992).

Global perspectives and intercultural literacy are assets to those competing in the global economy. Higher education and now elementary/secondary education have taken the role of developing global perspectives and international literacy in students (Redmann & Davis, 1989). Previously the curriculum for history, languages, and geography included global education. However, the opportunity to provide international education is also available in business, economics, and marketing (Berardi, 1991).

Beistel (1991) urged secondary business programs to present programs in international business. The current business curriculum can be "crowded" and a new international business course may not be feasible (Palmer, 1990-1991). Integrating international business concepts into present courses is recommended as an alternative by Carlock (1991).

The lack of identifiable concepts, objectives, and methods are major deterrents to implementing international business in the curriculum (Sapre 1982). State education agencies along with business educators have begun to develop international business curriculum materials. Curriculum specialists in a joint project between Washington, Oregon, and Alaska developed the *International Trade Curriculum* (Alaska, 1989). Virginia (1991) and Delaware (1990) have developed materials for international business at the secondary level. Border (1989) addressed the need to identify the new competencies of an international environment. Competencies are important components of educational materials such as textbooks, supplemental workbooks, and student working papers, all used in secondary business education programs. Publishing companies are just beginning to develop international business materials for secondary business education.

Sapre (1982) recommended inservice education for business teachers so that international business dimensions can be added to the curriculum. La Rosa (1990) stated that globalizing business education is a challenge. Not only do students need to acquire international business competencies, educators need instruction. Scott (1992) contended that business instruction of the past has been insufficient to meet the sophistication of inter-

national business. He identified a need for international education at all levels to prepare students and educators.

Statement of the Problem

Curriculum materials for international business in the secondary schools are limited. State departments of education are developing curriculum guides for the study of international business. Educational materials appropriate for secondary international business programs are under development by publishers. The content of these materials should align with the international business competencies needed of employees in global firms.

Purpose of the Study

The purpose of this study was to identify the international business competencies considered important for secondary business students studying international business. The identified list of international business competencies will assist business educators in developing appropriate curricula, activities, and resource materials.

This study answered the following research question: What international business competencies, identified by a group of human resource managers from global U.S.-based firms, are important for secondary business students studying international business?

Methodology

Delphi Study

A Delphi study is a research method for "eliciting and refining the opinions of a group of people" (Dalkey, 1972, p. 25). Dalkey and Helmer (1963) described the Delphi study as a way to "obtain the most reliable consensus of opinion of a group of experts" (p. 458). The consensus is obtained through a series of questionnaires containing controlled feedback (Dalkey & Helmer, 1963, and Helmer, 1967). The Delphi "attempts to make effective use of informed intuitive judgment" (Helmer, 1967, p. 4) both on the part of the investigator and the panel of experts.

The Delphi method included these steps in a study conducted by Young (1976):

1. Select a panel of experts.
2. Question the experts independently.
3. Feed information about the responses back to the experts.
4. Invite the experts to revise the prediction or to give reasons for not revising.
5. Repeat until consensus is achieved. . . .
6. Analyze each round. (p. 3)

Delbecq, Van De Ven, and Gustafson (1975) described a modification to the original Delphi format. Modifications to the original Delphi method have been used in other research studies and were used in this study.

Procedure

After a comprehensive curriculum and literature search, 47 international business competencies were incorporated into a questionnaire for the Delphi panel of experts. The competencies were those developed by the Virginia Department of Education (Virginia, 1991). The implementation of the modified Delphi technique in this study used competencies in their original form in the first round. Panel members, however, were allowed to add competencies in Round 1.

Panelists rated the competencies on a six-point Likert-type scale of unimportant to important. A rating of six indicated the competency was important for secondary business students studying international business. A rating of one indicated that it was unimportant for secondary business students studying international business. The six-point rating scale provided no neutral point as recommended by Travis (1976). According to Scheibe, Skutsch, and Schofer (1975), there is no need for an interval scale to be used with a Delphi study. Therefore, a Likert-type rating scale is an approved Delphi technique, one that is also quick and easy for panelists to mark.

Pilot Study

Following the development of the instrument, a pilot study of the instrument was conducted. Human resource managers from five Northwest Missouri firms conducting business abroad were phoned, briefed about the study, and asked to serve as panel members of the pilot study. In a cover letter, the human resource managers were asked specifically to evaluate the instrument regarding clarity of directions and overall effectiveness of identifying the international business competencies considered important for secondary business students studying international business.

All panel members of the pilot study responded. No changes to the original instrument listing competencies for secondary business students studying international business were suggested.

Panel Composition

A panel of 25 experts was selected for participation in this modified Delphi study. Panelists were human resource managers or training and development managers from a random sample of U.S.-based firms of international scope (Global 500, 1993).

Telephone calls to a random sample of *Fortune's* Global 500 U.S.-based firms were made to their corporate headquarters. Requests to speak with the human resource or training and development manager were made. After contacting the firms in sequential order of the random numbers, 67 firms were called in order to reach the panel size of 25. Some individuals declined,

while others were not available. A few firms required requests be made in writing. A participation form and cover letter were sent to the 25 human resource managers agreeing to serve on the panel of experts. Upon receipt of their consent, Round 1 began.

Round 1

Three rounds were used in this study. A cover letter, questionnaire, and return business reply envelope were mailed to the 25 established panel members for Round 1. The original questionnaire of 47 international business competencies allowed panel members to add additional competencies based upon their expert judgment.

Follow-up telephone calls and fax communications encouraged nonrespondents to respond. One panel member did not return the questionnaire after numerous contacts and was dropped as a panel member, which altered the panel size from 25 to 24.

Panel members rated each competency with a six-point Likert-type scale from unimportant to important. Upon return of the questionnaires, the interquartile range and scores of central tendency for each competency were calculated.

Round 2

A cover letter, second-round questionnaire, and a return business reply envelope were mailed to 24 panel members. One panelist could not be reached after resigning his position and not leaving a follow-up address. Therefore, the panel size dropped to 23. Nonrespondents were telephoned and sent fax communications to encourage replies.

Panel members were asked in Round 2 to reassess their responses using the new list of competencies. For each of the 47 original competencies, the panel member's response was indicated with a check mark. The range of the interquartiles (majority responses) from Round 1 were marked with brackets. In addition, seven new competencies were added reflecting suggested competencies from panel members in Round 1.

Panelists were asked to rate each of the 54 competencies with a six-point Likert-type scale from unimportant to important. If a panel member's rating in Round 2 fell outside of the majority range, a brief justification was requested. Listing reasons for minority responses provides panel members an opportunity to defend their ratings and share their opinions with panel members. Reporting the reasons provides "dialogue" among panel members without a face-to-face meeting. The interquartile range and scores of central tendency for each competency were calculated. Results from Round 2 were incorporated into the questionnaire used in Round 3.

Round 3

A cover letter and third-round questionnaire were presented to the panel members to re-evaluate their responses on the expanded list of 54 competencies. The range of the interquartiles (majority responses) from Round 2 were marked with brackets.

Individual panel member's responses to each item from Round 2 were indicated with a check mark. Justifications from panel members in Round 2 for their respective minority responses were listed for panel members to view. Nonrespondents were encouraged to respond through telephone and fax messages in order to maintain the panel size at 23. One questionnaire was not received by the deadline; therefore the panel size dropped to 22.

Method of Determining Consensus

Upon receipt of Round 1 and 2 questionnaires, the interquartile ranges for each competency were calculated and reported in the next round to panel members. Following Round 3, the interquartile ranges were examined to establish consensus. Scheibe, et al. (1975) assumed consensus was met when responses fell within an interquartile range of 2 units or less on a 10-point scale.

After Round 3, the reasons for minority opinions were recorded and used to compile the final competency list. Those competencies with a quartile deviation of less than 2 units on a 10-point scale or 1.2 were considered to be of consensus.

Method of Determining Importance

Panel members rated each competency on a six-point Likert-type scale of unimportant to important (1-6). Importance in this study was operationally defined as a median of 3.5 or higher. Therefore, measures of central tendency were calculated for each competency in all three rounds. After Round 3, competencies with a median of 3.5 or higher were considered important international business competencies for secondary business students studying international business. Competencies with a median of less than 3.5 were considered unimportant international business competencies for secondary business students studying international business.

Summary

The research method used to identify the international business competencies considered important for secondary business students studying international business employed the modified Delphi technique. The iterative rounds increased the 47 original competencies in Round 1 to 54 for Rounds 2 and 3. The panel members reached consensus and rated competencies as

unimportant and important after Round 3, thus identifying a list of international business competencies considered important for secondary business students studying international business. Human resource managers from 25 U.S.-based companies among *Fortune's* Global 500 Firms served as panel members. Three rounds were judged necessary to arrive at consensus.

Presentation and Analysis of Data

To determine a competency was important, a median of 3.5 or higher at the conclusion of Round 3 was defined operationally. Those competencies with a median of 3.5 or higher were considered important for secondary business students studying international business.

Important/Consensus Combination

The panel reached consensus and rated as important 48 of the 54 competencies, found in Table 1. Consensus was determined by a quartile deviation of 1.2 or less. Importance was defined operationally as a median of 3.5 or higher. International business competencies meeting these criteria for quartile deviations and medians included the areas of economic concepts, global organizations, finance, marketing, social and cultural factors, and trade.

Table 1
International Business Competencies: Important/Consensus Combination

Introduction	**Median Score, Round 3**
*1. Provide a brief outline of major events in the history of international trade.	4.00
*2. Identify the major characteristics of international trade.	5.00
*3. Identify the geographical location of leading countries in international trade.	5.00
*4. Classify countries as industrial, developing, or centrally planned.	5.00
*5. Label major international trade routes.	4.00
*6. Describe activities of major organizations that	4.00
7. Describe the benefits of international trade.	5.00
8. Discuss purpose of countertrade in world trade.	4.50
Economic Concepts	
*9. Describe the ways in which supply and demand affect prices in the global market.	5.00
*10. Differentiate between absolute and comparative advantage in trade.	4.00
*11. Describe the resources a country must use to produce goods and services.	4.50
*12. Identify advantages and disadvantages of free trade and protectionism.	5.00
*13. Discuss the impacts of a reduction in protectionism to consumers rather than to special interest groups.	5.00
Influential Global Organizations	
*14. Describe the influence of the International Monetary Fund (IMF) on worldwide business.	4.00
*15. Identify organizations that assist businesses in raising foreign capital.	4.00
*16. Identify the various vehicles of international cooperation in trade, such as common markets, trade agreements, treaties, and international banks and lending institutions.	5.00
17. Describe the benefits and risks associated with involvement with global organizations.	5.00
*18. Explain the various relationships or agreements among selected participants in international trade cooperatives, such as those of the European Economic Community (EEC).	5.00
19. Explain the advantages and disadvantages of trade agreements among nations (NAFTA, ASEAN, etc).	5.00
International Finance	
*20. Identify currencies of selected foreign countries.	4.00
*21. Explain how foreign exchange values are influenced by changes in the supply and demand for currency.	5.00
*22. Calculate the value of the dollar against selected foreign currencies.	5.00
*23. Explain how currency fluctuations affect the ability of U.S. businesses to import or export profitably.	5.00
*24. Identify the components of the U.S. balance of payments account and their relationship to each other.	5.00
*25. Explain deficit and surplus in balance of payment accounts and the effects on the U.S. economy.	5.00
*26. Identify reasons that businesses need the currency of other countries.	5.00
27. Describe financial incentives used to attract financing.	5.00

(table continued)

	Median Score, Round 3
International Marketing	
*28. Explain the role of marketing in international trade.	5.00
*29. List strategies suitable for identifying foreign markets.	5.00
*30. Distinguish between the concepts of product or service adaptation vs. standardization.	4.00
*31. Analyze the factors involved in advertising domestically and in advertising internationally (including availability of media, social and cultural factors, consumer behavior, legal constraints, and language).	5.00
International Trade Environment	
*32. Explain reasons for governmental attempts to regulate international trade.	5.00
*33. Identify principal obstacles to international trade.	5.00
*34. Identify the characteristics of the three basic economic systems (traditional, command, and market).	5.00
*35. Cite examples of government interaction with business in the international marketplace.	5.00
*36. Identify ways in which political circumstances affect a country's participation in the global marketplace.	5.00
Social and Cultural Factors	
*37. Identify distinctive social and cultural factors that can affect the conduct of international business.	5.00
*38. Explain how cultural and social factors in the target country affect advertising in foreign markets.	5.00
*39. Explain U.S. cultural and social attitudes and practices that could inhibit successful business operations in a foreign country.	5.00
40. Explain how oral and written communication and nonverbal and body language can positively and negatively affect international business.	5.00
U.S. Involvement in International Trade	
*41. Identify major U.S. trading partners and major goods traded.	5.00
*42. Evaluate the effects of multinational corporations on domestic and international business.	5.00
*43. Determine reasons for U.S. business investment in foreign countries and foreign investments in the U.S.	5.00
*44. Identify major foreign investors in the United States.	4.00
*45. Identify the major countries that export goods and services to the U.S. and their chief export.	5.00
*46. Identify the major U.S. exports and their primary markets.	5.00
*47. List U.S. and foreign government regulations affecting international trade, including major laws, tariffs, quotas on imports and exports, and nontariff barriers.	5.00
*48. Determine the effects of trade restrictions on domestic jobs, production costs, and exports.	5.00

Note. *Competencies from *Business Education Suggested Course Competencies and Performance Objectives.* (1991). Glen Allen, VA: Virginia Vocational Curriculum and Resource Center.

Unimportant/Consensus Combination

Consensus was reached by the panel that two competencies were unimportant for secondary business students studying international business, found in Table 2. Medians for these two competencies were lower than 3.5, yet their quartile deviations were 1.2 or lower. The role of the United Nations and the location of U.S. direct foreign investment were the competencies considered unimportant.

Table 2
International Business Competencies: Unimportant/Consensus Combination

Influential Global Organizations	**Median Score, Round 3**
*49. Describe the role of the United Nations in economic development and international trade.	3.00
U.S. Involvement in International Trade	
*50. Cite locations of U.S. direct foreign investment.	3.00

Note. *Competencies from *Business Education Suggested Course Competencies and Performance Objectives.* (1991). Glen Allen, VA: Virginia Vocational Curriculum and Resource Center.

Important/No Consensus Combination

The panel did not reach consensus on four competencies, found in Table 3. The quartile deviations of these four competencies exceeded 1.2, yet their medians were higher than 3.5. Competencies about the World Bank Group, distribution in international trade, the basic economic systems, and knowledge of a foreign language did not reach consensus but were considered important for secondary business students studying international business.

Table 3
International Business Competencies: Important/No Consensus Combination

Influential Global Organizations	Median Score, Round 3
*51. Outline the activities of the World Bank Group.	4.00
International Marketing	
*52. Analyze the factors involved in distribution in international trade (including strategies, channels of distribution, and direct selling vs. use of intermediaries.	5.00
International Trade Environment	
*53. Explain how each of the three basic economic systems determines (1) what to produce, (b) how to produce, and (3) how to share production.	5.00
Social and Cultural Factors	
*54. Assess the importance of language and language habitsin international business.	4.00

Note. *Competencies from *Business Education Suggested Course Competencies and Performance Objectives*. (1991). Glen Allen, VA: Virginia Vocational Curriculum and Resource Center.

Unimportant/No Consensus Combination

The panel did not consider any competencies as unimportant that also did not achieve consensus.

Summary

The panel reached consensus and rated as important 89% (48/54) of the competencies. The iteration process of three rounds in this modified Delphi study showed a progression toward consensus in the rounds. The identified competencies suggest the international business competencies considered important for secondary business students studying international business. The panel of experts met consensus on and rated as unimportant 4% (2/54) of the competencies. These competencies were considered unimportant for secondary business students studying international business. The panel members did not reach consensus but rated as important 7% (4/54) of the competencies.

Conclusions and Recommendations

The panel did not reach consensus on four competencies related to: the World Bank Group, distribution in international trade, basic economic systems, and knowledge of a foreign language. Without consensus these competencies were not included in the final list although the panel rated these competencies as important for secondary business students studying international business. Panelists stated that language skills were important but not as important as business skills. Therefore, current secondary international business programs should re-evaluate a foreign language requirement. As stated by panel members, foreign language competency is not as important as other competencies.

During this study, world and national attention was focused on the U.S. Congress as approval of the North American Free Trade Agreement (NAFTA) was debated. In the weeks prior to congressional approval, Americans were bombarded with issues, advantages, and disadvantages of NAFTA. Firms with global interests had a vested interest in the approval of NAFTA, no doubt including those firms of the panel members. The panel reached consensus on the two competencies involving benefits of international trade and trade alliances. The high profile of NAFTA and the expected benefits to panel members' firms appeared to have an impact on this study.

The following recommendations are based upon the findings from this study:

1. The secondary business curriculum should include international business competencies which students are to master.

2. Current secondary international business programs need to realign their present curriculum based on the findings in this study.

3. Business educators should master the competencies identified in this study. Therefore, business teacher education programs should include international business content, methods, and resources in the curriculum for prospective and current business educators.

Educators are encouraged to evaluate all 54 competencies identified in this study, noting particularly the 48 competencies on which the panelists reached consensus and rated as important. Educators must adapt the curricula to meet more effectively the needs of business and industry and the secondary business students studying international business.

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Is Certification a Useful Tool For Recruiting, Hiring, And/Or Promoting Administrative Managers?

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Abstract

Certification is one method which can be used by individuals to verify their credentials. The goal of this study was to determine the meaning and importance of certification to Certified Administrative Managers and their employers. Specifically, this study sought to examine the career pattern of Certified Administrative Managers after certification and to determine whether certification is being used presently or will be used in the future to hire and/or promote administrative managers.

Introduction

Recruitment of qualified personnel is a major concern of modern organizations especially when economical situations force the "rightsizing" and elimination of thousands of employees. Companies are going to be expected to produce more with fewer personnel and fewer resources. Crawford feels "The long-term financial success of American companies is becoming dependent on the quality of their people" (cited in Gates, 1992, p. 70). Employers are looking for methods to determine who are the most qualified or "the best" employees now that job responsibilities have changed for many workers and training costs have increased for employers.

One way which has been used to determine an individual's qualifications is to assess his/her credentials. Educators need to be aware of assessment tools being used by business and industry and determine the importance of each for students who will be entering the workplace. The results of this study will allow educators to determine whether certification is viewed as a viable tool for recruiting, hiring, and/or promoting those in the field of administrative management.

Purpose

The purpose of this study was to examine the meaning and importance certification has had for Certified Administrative Managers (C.A.M.s) and their employers. Specifically, the study attempted to determine who are Certified Administrative Managers, why did they choose to become certified, how did they acquire certification, what benefits have been a result of certification and what influence has certification had on their career enhancement and the hiring/promotion policies/practices of firms employing them. This article will provide general information regarding the results of six of the eight research questions and will provide specific data for two research questions which determined the effect certification has had on administrative managers' careers and the perceptions of Certified Administrative Managers and their personnel directors regarding the role of C.A.M. certification on hiring/promotion policies/practices.

Research Questions

The research questions for this study were:

1. What is the proportional division among C.A.M. holders in (a) gender, (b) age, (c) classification of business, (d) size of industry in which the Certified Administrative Manager is employed, (e) salary level, (f) educational level, and (g) area describing the location of the Certified Administrative Manager in the organizational structure?

2. Has there been a major change in similarly collected demographic data describing Certified Administrative Managers in the last 14 years?

3. Why did the Certified Administrative Managers surveyed choose to obtain certification?

4. Which one of the three paths was used to acquire certification, and was/were the method(s) used to prepare for certification different in each path?

5. When was certification acquired and what effect has certification had on the careers of Certified Administrative Managers as perceived by Certified Administrative Managers themselves.

6. What are the perceptions of Certified Administrative Managers regarding the non-financial and financial benefits as provided by businesses?

7. Is there a difference among perceptions of C.A.M. holders and their personnel directors regarding the role of C.A.M. certification in hiring/promotion policies/practices?

8. What are the perceptions of personnel directors regarding the support for individuals receiving the Certified Administrative Manager rating?

Procedures

After reviewing the literature, two questionnaires were developed. One questionnaire was used to gather data from Certified Administrative Managers and the other questionnaire was used to gather data from the personnel director or someone responsible for hiring at the firms where the Certified Administrative Managers were employed. Studies done by Jackson (1965/1966), Smith (1978), Krizan (1978/1979), Hillsman (1978/1979), and Mason (1984/1985) and information provided from articles by Blair (1992) and Black & Everard (1992) were helpful in the construction of the questionnaires.

Section I of the Certified Administrative Manager's Questionnaire consisted of demographic questions; Section II revealed reasons for certification; Sections III and IV determined methods used to prepare for certification and paths used to acquire certification; Section V determined the date of certification and effect on C.A.M.s' careers; Section VI revealed whether benefits had been received; Section VII determined present/future hiring and promotion policies/practices of firms employing C.A.M.s.

Section I of the Personnel Director's Questionnaire determined whether or not the C.A.M. rating was considered worthwhile by personnel directors and whether or not encouragement to attain the rating was given. Section II questions revealed the perceptions of personnel directors regarding present and future hiring and promotion policies/procedures.

A panel of 11 reviewed both questionnaires for validity and reliability. Both instruments were pilot tested before being sent to 652 Certified Administrative Managers (C.A.M.s). This included all C.A.M.s working in the United States who were registered with the Academy of Administrative Management as of January, 1992, except two who helped review and validate the survey instruments.

A cover letter enclosed with the questionnaires requested the C.A.M.s to complete the Certified Administrative Manager's Questionnaire and forward the Personnel Director's Questionnaire to personnel directors in the firm or someone in charge of personnel matters.

From the accessible population of 590, a total of 342 C.A.M. questionnaires were returned which included 267 C.A.M. holders currently working and 75 retired C.A.M.s. Of the 75 retired C.A.M.s, 35 completed the survey instruments and 40 did not. The usable returns totaled 267 C.A.M.s (52%) and 35 retired (47%). The 302 who responded equated to 51% of the total accessible population of 590. Questionnaires were returned from 199 personnel directors.

Findings

Descriptive statistics were used to answer the research questions. Seven of the eight research questions were answered using the information provided by the currently employed C.A.M. holders while two questions were answered from data provided by personnel directors.

Responses to research questions #1 and #2 allowed the researcher to construct an updated profile of a Certified Administrative Manager. Question #3 provided responses as to why Certified Administrative Managers chose to become certified. Question #4 determined the path which was most frequently used to acquire certification. Research Question #6 revealed that non-financial and financial benefits resulting from certification were minimal. Research Question #8 determined that 52.6% of personnel directors surveyed indicated that encouragement is given to individuals interested in acquiring certification.

Effect of Certification on Careers

When discussing career changes, most individuals would agree that two major types of movements occur--movement within an organization and movement from one organization to another. This study asked respondents to not only indicate the number of changes (promotional, lateral and demotions) within the organization since receiving certification but to also indicate the number of changes in employment from one organization to another since certification.

The results of Question #5 were as follows:

Eighty respondents (31.5%) indicated that no promotions had occurred since attaining their certification. Approximately the same number (85--33.5%) had acquired one promotion while 89 (37.0%) had been given two to five promotions since acquisition of certification.

Lateral moves had been made by 72 (45.4%) of the respondents with 52 of those 72 (72.2%) making only one move since certification. Over one half of the 203 respondents (111--54.7%) indicated that they had made no lateral moves since acquiring the C.A.M. rating.

A large number of C.A.M.s (189) did not respond when asked whether they had been demoted. From those who did respond (178), 164 (92.1%) reported never having been demoted with 13 being demoted at least once and one person being demoted twice.

When asked the number of changes from one organization to another since certification, the largest percentage of respondents–57.1% (152)–reported they had made no changes. Fifty-

four (20.3%) had changed companies one time; 29 (10.9%), two times, 15 (5.6%), three times; 9 (3.4%), four times, and 7 (2.6%) five or more times.

Perceptions of C.A.M.s and Personnel Directors Concerning Hiring/Promotion Policies/Practices

Question #7 was asked in order to determine whether there was a difference among perceptions of C.A.M. holders and their personnel directors regarding the role of the C.A.M. rating in hiring and promotion policies/practices. Results showed that the largest percentages of C.A.M.s indicated their employers do not consider the C.A.M. rating in present hiring practices (60.3%–161 respondents) or present promotion practices (59.8%–159 respondents). Responses to questions concerning the contemplated use of the C.A.M. rating in future hiring policies (55.1%–146 C.A.M.s) and promotion practices (53.0%–141 C.A.M.s) were similar.

Similar perceptions were evident when a comparison was made of the perceptions of C.A.M.s and personnel directors regarding the role of the C.A.M. rating on present and future hiring policies and promotion practices.

Conclusions

Conclusions which related to the usefulness of certification in recruiting, hiring, and/or promoting administrative managers were as follows:

1. Personnel directors and C.A.M.s agreed that the C.A.M. rating presently is not used in hiring/promotion policies/procedures nor is there a contemplation of use of the rating in future hiring/promotion policies/procedures.

2. The majority of promotions were received by Certified Administrative Managers after they became certified.

3. Over 50% of the Certified Administrative Managers had not made any lateral changes within their present organization or changed from one firm to another since certification.

4. Demotions had not occurred for the majority of Certified Administrative Managers since certification.

Recommendations

Based upon the findings and conclusions of this study, the following recommendations are being made to business educators:

1. Business educators need to survey businesses to determine what criteria are being used in hiring and promotion policies/practices and to determine why certification is not an integral part of hiring and promotion policies/practices in the administrative management area.

2. Business educators also need to survey businesses to determine the importance placed on other types of certifications when hiring and promoting employees and compare their importance with that of the Certified Administrative Management rating.

3. Additional research needs to be conducted by business educators to determine how certification could be more beneficial to both administrative managers and employers.

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Management Training Program Evaluation: Evaluation Methods, Use of Results, and Perceived Barriers

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Abstract

This study examined evaluation methods, use of results, and perceived barriers to effective management training program evaluation. The study also sought to determine if a relationship existed between perceived barriers and (1) evaluation methods and (2) use of results. Findings indicate that reaction to training is the most frequently used evaluation method. Results from evaluation are frequently used to improve training programs. Frequently cited reasons for not evaluating training were: evaluation of training is difficult to measure; lack of staff expertise; lack of standards to evaluate training; lack of personnel; and difficulty in isolating behaviors that changed as a result of training. Although $6 billion is spent annually on management training and corporate education (Fuchsberg, 1993), there appears to be little attempt to link training and evaluation to determine if training is accomplishing organizational objectives.

Introduction

Corporations frequently provide training as one vehicle through which they hope to achieve organizational success. However, training without evaluation does little to verify that training contributes to organizational goals and objectives such as profitability, efficiency, growth, and survival (Hook, 1984).

Numerous benefits may be derived from evaluating training programs. Among these benefits are decisions relevant to continuing, eliminating, or modifying existing training programs; assessing knowledge acquired by trainees; determining if transfer of training occurred; identifying positive changes in trainee behavior and attitudes that affect work performance; and cost-benefit analysis. It is essential that evaluation be included in designing and implementing training programs and that evaluation methods that assess the value of training are identified (Lowe, 1988; Robinson & Robinson, 1989; Parry, 1992; Sims, 1990; Lippitt, Langseth & Mossop, 1985). One measure of the effectiveness of a training program is the evaluation procedures used to assess students' competence (Lowe, 1988). Evaluation is frequently conducted at the reaction level (Cummings & Parks, 1992; Essentials for Evaluation, 1986; Parry, 1992; Robinson & Robinson, 1989) and rigorous evaluation must be applied beyond this level to demonstrate the value of training to top management.

Smith and Brandenburg (1991) found that: few training programs are evaluated; data collection is often limited to polling participants' reaction to the program; and few seek to determine the transfer of newly acquired skills to the job setting.

Evaluation has not kept pace with the proliferation of corporate training programs (Brinkerhoff, 1989; Robinson & Robinson, 1989; Sims, 1990; Cummings & Parks, 1992). The focus of training is just that--training without the resultant evaluation to determine if training has contributed to new learning, increased knowledge, improved performance, or had any impact on the organization. Organizations would not normally invest in new procedures, materials, or methods without first determining the benefits of these investments. Yet organizations continually invest in training programs without evaluating the results. "The fact that fewer than half of America's training programs are formally evaluated indicates implicit managerial trust that, somehow or other, training facilitates attainment of organizational goals (Evaluation Framework, Design and Reports, 1990, p. 15).

Problem of the Study

The problem of this study was to: (1) analyze procedures for evaluating management training programs; (2) determine how evaluation results from management training programs are used by organizations; and (3) identify perceived barriers to effective evaluation of management training programs. In addition, the study sought to determine (1) if there is a relationship between management training program evaluation methods used and perceived barriers to effective evaluation of management training programs; (2) if there is a relationship between utilization of management training program evaluation results and perceived barriers to effective evaluation of management training programs; and (3) is there a relationship between (a) Standard Industry Classification (b) organizational size and perceived barriers to effective evaluation of management training programs.

Summary of the Literature

The literature is replete with information on corporate training programs and evaluation (Sims, 1990; Coffman, 1990; Paquet, Kasi, Weinstein & Waite, 1987; Casner-Lotto, 1988; Brinkerhoff, 1989). These studies, books and periodicals assessed selected

stages of training: needs analysis, design of training programs, selection of materials and methods, and implementation. Despite hundreds of articles, books and seminars devoted to the topic of evaluation, it remains largely misunderstood, neglected or misused (Sims, 1990).

A review of the literature from 1986 through 1992 produced four reports that addressed issues and concerns relative to effective evaluation (Brandenburg, 1989; Clegg, 1987; Lippitt, Langseth & Mossop, 1985; Gutek, 1988). Questions related to perceived barriers to effective evaluation are asked infrequently and the results are inconclusive. If perceived barriers to effective evaluation may be identified, barriers may be ameliorated.

The literature review provided little information to determine what will be evaluated and how evaluation will be conducted. Evaluation is not tied to training needs, program design and program implementation. The primary goal of training program evaluation should be to collect data that will be used for training program improvement, maintain quality control over its components, supply information to key decision makers and determine training's impact on the organization.

Methodology

Subjects

The target population was trainers in management development programs in business and industry. The accessible population consisted of members of the American Society for Training and Development (ASTD), Management Development Professional Practice Area. Names and addresses of 1,611 members were obtained from the ASTD 1992 *Who's Who in Training and Development Membership Directory*. Names of the target population were entered into a database by first name, last name and state in order to generate a random list of the accessible population. By reviewing Bureau of the Census data, states and the associated names were collapsed into nine divisions: (1) Pacific, (2) Mountain, (3) West North Central, (4) East North Central, (5) Middle Atlantic, (6) South Atlantic, (7) New England, (8) West South Central and (9) East South Central (US Department of Commerce, Economics, and Statistical Administration, Bureau of the Census, 1988).

Survey Instrument

The data collection instrument consisted of a survey questionnaire. Since no instrument was available for assessing perceived barriers to effective evaluation, questions were based upon the literature review and other survey forms identified. The survey questionnaire consisted of closed-end questions to ascertain evaluation methods and use of evaluation results and a Likert-type scale to identify perceived barriers to effective evaluation. The independent variables were management training program evaluation methods and use of evaluation results. The dependent variable was perceived barriers to effective evaluation. The moderator variables were Standard Industry Classification and organizational size.

Treatment of the Data

Descriptive statistics were reported for evalution methods, use of results, demographic data, Standard Industry Classification, organizational size, and geographic location. A bivariate correlation was used to analyze perceived barriers and evaluation methods; perceived barriers and use of evaluation results; perceived barriers and (a) Standard Industry Classification (b) organizational size. Multiple correlation techniques were utilized to determine if a relationship existed between (a) perceived barriers and evaluation methods and (b) perceived barriers and use of evaluation results. Multiple regression was used to determine if a relationship existed between perceived barriers to effective evaluation and (a) Standard Industry Classification (b) organizational size. A Principal Components Analysis (PCA) was conducted for evaluation methods, use of evaluation results and perceived barriers to effective evaluation. The specific goals of PCA are to: (1) summarize patterns of correlations among variables; (2) reduce a large number of variables to a smaller number of factors; (3) provide an operational definition for an underlying process; or (4) test a theory about the nature of underlying processes (Tabachnick & Fidell, 1989).

Four factors were identified for evaluation methods: (1) training's impact on the organization; (2) testing methods; (3) trainee's reaction to training and perceived usefulness of training; and (4) use of organizational records. Three factors were identified for use of evaluation results: (1) improvement of training programs; (2) benchmarking; and (3) program status. A reliable factor solution was not identified for perceived barriers to effective evaluation.

Data Collection Procedures

Two mailings were sent to the accessible population. Responses from the first and second mailings were separated, and the Scheffé procedure to test pairwise comparisons was used to determine if differences existed between the two groups. Differences between the groups were not significant at an alpha level of 0.05. Thus, it is expected that data from additional samples will not change the findings of this study.

Findings

Of the 310 survey instruments mailed to the accessible population, 124 were returned for a response rate of 40 percent. Of the 124 returned, ten were not used in the results of this study as the questionnaires were incomplete.

Demographic Information

The largest group of respondents were from the East North Central geographic region of the United States. Manufacturing or-

ganizations comprised the largest group of respondents, with wholesale trade organizations representing the smallest. Almost 44 percent of respondents were employed in organizations from 250 to 2,499 employees. Years with the organization and years in current position were represented in approximately the same proportions. One to five years with the organization and one to five years in current position were most often reported by the respondents. Table 1 through Table 5 report respondents' demographic data.

Table 1
Respondent Geographic Location

Location	Number	Percent
Pacific	15	13%
Mountain	6	5%
West South Central	13	12%
East South Central	5	4%
West North Central	12	11%
East North Central	24	21%
South Atlantic	17	15%
Middle Atlantic	16	14%
New England	6	5%

Table 2
Standard Industry Classification (SIC)

SIC	Number	Percent
Manufacturing	47	41%
Transportation, Communication, Electric, Gas, and Sanitary Services	15	13%
Wholesale Trade	2	2%
Retail Trade	5	5%
Finance, Insurance, and Real Estate	15	13%
Services	30	26%

Table 3
Organizational Size Classification

Size	Number	Percent
1 to 249 employees	9	8%
250 to 2,499 employees	50	44%
2,500 to 24,999 employees	36	31%
25,000 or more employees	19	17%

Table 4
Respondent Years with the Organization

Number of Years	Number	Percent
Less than one year	4	4%
One year to five years	50	44%
Six years to ten years	23	20%
More than ten years	37	32%

Table 5
Respondent Years in Current Position

Number of Years	Number	Percent
Less than one year	9	8%
One to five years	63	55%
Six to ten years	20	18%
More than ten years	22	19%

Evaluation Methods

When asked to identify methods used to evaluate management training programs, the majority of respondents always used (81.6%) the reaction method (reaction to training and perceived usefulness of training by participants); occasionally used (68.4%) impact evaluation (determining training's impact on organizational goals and profits, measuring performance on the job, and comparing customer complaints before and after training) and tests (72.8%) (using a pretest, posttest, and both a pretest and posttest), and never used (70.2%) organizational records (comparing turnover and absenteeism records before and after training). Table 6 illustrates the various responses.

Table 6
Evaluation Methods

Method	Always Use		Occasionally Use		Never Use	
	N	%	N	%	N	%
Reaction	93	81.6%	21	18.4%	0	0.0%
Impact	27	23.7%	78	68.4%	9	7.9%
Org. Records	4	3.5%	30	26.3%	80	70.2%
Tests	4	3.5%	83	72.8%	27	23.7%

Uses of Evaluation Results

Respondents were queried as to uses of evaluation results. The majority of respondents always used (89.4%) data for program

improvement (improving program design, delivery and instructional materials; giving results to the trainer; and planning for future training) and program status (71.0%) (decisions related to continuing, modifying, or eliminating training programs). The majority of respondents occasionally used (69.3%) data for comparison purposes (comparing results with other organizations and giving information to top management). Table 7 shows responses.

Table 7
Uses of Evaluation

Use	Always Use		Occasionally Use		Never Use	
	N	%	N	%	N	%
Improve	102	89.4%	12	10.6%	0	0.0%
Program	81	71.0%	32	28.1%	1	0.9%
Compare	28	24.6%	79	69.3%	7	6.1%

Perceived Barriers

Respondents were asked to indicate their level of agreement or disagreement with 15 perceived barriers to effective evaluation statements. Table 8 lists the perceived barriers.

Table 8
Perceived Barriers to Effective Evaluation

Number	Statement
1	Evaluation of training is difficult to measure
2	There is not enough time to evaluate training
3	Current staff lack expertise in evaluating training
4	We lack funds for evaluation
5	Evaluation of training is not required
6	It is hard to gain management's support
7	There are a lack of standards to evaluate training
8	There are a lack of personnel to evaluate training
9	Training program objectives are not established
10	Training program objective are not measurable
11	Isolating behaviors is difficult
12	Top management prefers a particular evaluation method
13	Not sure what should be evaluated
14	We lack of computerized equipment to process collected data
15	Evaluation methods will have little impact on the organization

The majority of respondents agreed with the following perceived barriers to effective evaluation statements: evaluation of management training programs is difficult to measure (67.7%) statement one; current staff lack expertise in evaluating management training programs (53.5%) statement three; there are a lack of standards to evaluate management training programs (70.2%) statement seven; there are a lack of personnel for evaluation purposes (65.0%) statement eight, and isolating behaviors is difficult (57.9%) statement ten. Table 9 identifies responses.

Table 9
Perceived Barriers to Evaluation

Barrier Statement	Strongly Agree and Agree		Strongly Disagree and Agree		No Opinion	
	N	%	N	%	N	%
1	76	66.7%	36	31.5%	2	1.8%
2	42	36.8%	71	62.3%	1	0.9%
3	61	53.5%	51	44.7%	2	1.8%
4	45	39.5%	62	54.4%	7	6.1%
5	34	29.8%	76	66.7%	4	3.5%
6	52	45.6%	56	49.1%	6	5.3%
7	80	70.2%	32	28.0%	2	1.8%
8	74	65.0%	39	34.2%	1	0.8%
9	23	20.2%	91	79.8%	0	0.0%
10	28	24.6%	81	71.0%	5	4.4%
11	66	57.9%	46	40.3%	2	1.8%
12	12	10.5%	74	64.9%	28	24.6%
13	29	25.4%	79	69.3%	6	5.3%
14	35	34.2%	59	51.8%	16	14.0%
15	28	24.6%	75	65.8%	11	9.6%

Relationship Between Variables

The relationship between evaluation methods and perceived barriers to effective evaluation did reveal statistically significant differences in impact, tests, and record evaluation methods and the following perceived barriers: evaluation of training is difficult to measure; current staff lack expertise in evaluating training; there are a lack of standards to evaluate training; and isolating behaviors is difficult. The relationship between use of evaluation results and perceived barriers to effective evaluation did reveal statistically significant differences in program improvement and comparing training programs and the following perceived barriers: current staff lack expertise in evaluating training; there are a lack of standards to evaluate training; and there are a lack of personnel to evaluate training. Table 10 reports statistically significant results at an alpha level of 0.05 or below.

The relationship between Standard Industry Classification and perceived barriers di[illegible]veal a statistically significant difference among (1) evaluation of training is difficult to measure and (2) isolating behaviors is difficult. However, due to the low power and effect size, the specific Standard Industry Classification could not be detected.

Table 10
Relationships and Anovas

Evaluation of Training is Difficult to Measure

Source	F	p
Impact	3.343	.039
Record	3.997	.021

Current Staff Lack Expertise in Evaluating Training

Source	F	p
Impact	3.428	.036
Improvement	4.890	.029

There is a Lack of Standards to Evaluate Training

Source	F	p
Impact	5.011	.008
Compare	3.661	.029

There are a Lack of Personnel to Evaluate Training

Source	F	p
Improvement	5.515	.021

Isolating Behaviors is Difficult

Source	F	p
Impact	5.364	.006
Tests	3.122	.048
Records	7.380	.001

Conclusions

This study identified four methods used to evaluate management training programs: reaction to training, impact measures, organizational record measures, and testing. Evaluation results are used to make decisions related to continuing, modifying, or eliminating training programs. Perceived barriers to effective evaluation of management training programs included: evaluation of training is difficult to measure; current staff lack expertise in evaluating training; there are a lack of standards to evaluate training; there are a lack of personnel to evaluate training; and isolating behaviors is difficult.

It appears that organizations are using Kirkpatrick's evaluation model (Evaluating Training Programs, 1975), yet desire quantitative measures to prove training's worth to management. Since reaction to training relies on the affective domain, decisions related to training programs are made based on qualitative measures. It is difficult to determine training's impact because organizations may not be asking the proper questions or using appropriate statistical techniques. In addition, staff appear to lack knowledge and expertise in evaluation methods and research methodology.

Training departments overwhelmingly use evaluation results to furnish feedback to trainers, not data and information concerning training's impact that is shared with top management. Organizations are being asked to provide resources for training without knowing whether they are reaping the benefits of training. In addition, organizations are not being supplied with reliable and valid data as to training's effect on an organization's productivity and competitiveness.

This study found that rigorous evaluation is not occurring. There appears to be a lack of knowledge and insufficient staff to utilize evaluation results for the purpose of management training program improvement. Resources such as time and money are essential to improve training program design and delivery. If top management does not support these efforts, current training programs will not be changed, and evaluation results will not be used as benchmarks. Lack of awareness of evaluation standards may be the reason. The use of organizational records as an evaluation method requires that training staff have adequate time to review employee files. In addition, the training staff may not be able to determine links between organizational records and trainees' performance on the job.

Recommendations

1. Organizations should move to, support, and require evaluation that supplies valid and reliable data which are in agreement with organizational goals and objectives.
2. Aggregate evaluation results should be shared with top management to determine training's worth to the organization.
3. Organizations should recruit individuals to their training departments who are knowledgeable concerning evaluation measures; specifically, impact evaluation measures.
4. Organizations should retrain current training staff regarding up-to-date evaluation methods and the use of statistics to analyze results.
5. Trainees should receive support and be held accountable for applying training on the job.
6. Organizations should consider hiring additional staff, who possess expertise in impact evaluation methods.

Recommendations for Future Research

1. Future research should include front-end, cost benefit analysis prior to designing and implementing management training programs.

2. Future research should be undertaken to determine top management's perceptions regarding barriers to effective evaluation.

3. Future research should be conducted to identify variables that support and encourage transfer of knowledge and training.

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New Avenues in Crisis Management: A Comparative Study of Mitigation and Response Efforts by Managers

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Abstract

The number and variety of complex challenges facing managers today is seemingly endless: product recalls, bombings and bomb threats, violence in the workplace, industrial accidents--these are but a few of the events that technically fall under the umbrella of a crisis for industry (Mitroff and Pauchant, 1990,6).

In recent years, the field of crisis management has emerged within the business discipline, with at least two major research works emerging (Barton 1993, Mitroff and Pauchant 1990). National conferences are being called on the subject and both the traditional academic literature (e.g., Academy of Management Review, Academy of Management Executive, Long Range Planning) and the trade press have devoted considerable space to mitigation and response efforts. this presentation offers an overview of research into the causes and resolution of organizational crises, including surveys of executives, analysis of specific incidents in major industries, and content analysis of media reporting of these events.

Research Protocol and Overview

The author/presenter analyzed 802 incidents between 1980-92; included in the profiles of each incident were press reports, at least one conversation conducted with a principal in the case and at least one follow up written communication in which the organizational representative was asked to provide any incidental or follow-up data that may help in conducting the study. Because of the significant amount of time required to conduct the analysis, the summers of 1992 and 1993 were devoted to the research, with the international component of the research completed with a Fulbright grant in the summer of 1994.

The scope of field of individual managers and executives interviewed for the research ranged from the president of Luby's Cafeterias Inc. (where 23 patrons were murdered in Killeen TX on October 16, 1991) to director of crisis management for British Petroleum Exploration in Alaska (largest owner of Alyeska, operator of the Trans-Alaska pipeline and stakeholder in the Exxon Valdez disaster at Prince William Sound in 1989). In between, the scope also included interviews with victims of workplace violence, prosecutors, trauma counselors, ethicist and numerous others.

The first resulting body of work to emerge from the analysis, *Crisis In Organizations: Managing and Communicating In The Heat of Chaos* (Cincinnati: SouthWestern, 1993) has now been adopted by over 80 colleges and universities and some 720 corporations for training purposes; the second work, *Ethics: The Enemy In The Workplace*, was just published several weeks ago (Cincinnati: SouthWestern, 1994). Eight articles in refereed and editorial-directed journals have also emerged since the research began.

In addition to first-person interviews, the research entailed systematic categorizations of incidents (human, technological, criminal intent, etc.) and a timeline design on each incident from period when the initial incident was first detected or reported until the organization had determined that business had returned to normalcy. (In cases where the company had not made such a determination, a Johnson & Higgins index of ten days after business resumption was announced was utilized).

Range of Incidents

No organization is immune to disaster (Barton, 1993,5). A fire in small retail store can be as disruptive to an organization as the loss of five aircraft in five years, as has been recently experienced by US Air. The full scope of a catastrophe is relative in terms of the impact of the incident to the overall financial solvency, reputation, stability and competitiveness of the organization (Hardigree, 1993,17).

Indeed, when one considers the field of inquiry taught in the curriculum of most business schools, the focus is usually upon organizational behavior, finance, economics, leadership, entrepreneurship and related fields, but rarely is there any detailed examination of the catastrophes that threaten the viability of organizations. If one agrees with the assertion that a crisis is an unexpected incident that could damage an organization and its publics (Barton, 1993,46), it is clear that the events identified as representative in Table 1 are a potential threat to most groups:

Table 1
Selected Corporate Crises

Embezzlement	Unexpected Death of CEO
Insider Trading	Loss of License To Operate
Fire, Flood, Hurricane,	Environmental Spill
Other Natural Disasters	Invasive Competitive Intelligence
Workplace Violence	Terrorism
Extortion	Industrial Accident
Kidnapping Ransom	Product Tampering
Product Recall	

Each of these and numerous other events requires concerted organizational response. Hopefully, employers have considered the legal, financial, human resource and public relations ramifications of the mismanagement of any such events, but such hopes are often misplaced. In reality, the vast majority of employers (Goodin, 1992,3) do not have a Crisis Management Plan (CMP) or business resumption plan despite the litany of crises that have dominated headlines in recent years.

What is so surprising, of course, is that the anecdotal evidence regarding the fall-out of such events is compelling, *mismanaged*, any one of these or other crises can not only injured the company's bottom line and market share, it can impair less quantitative but nevertheless important aspects of a business: employee morale and motivation, client relations and community relations, to name but a few. A number of books have emerged in recent years warning that preparedness is the key to effective crisis management (notably Mitroff and Pauchant, 199, Gottshalk, 1993) but such warnings have gone unheeded. This is unfortunate because the lessons learned from the past twenty years of inquiry into organizational disasters offers a plethora of examples where readiness, preparedness, team training and the presence of a written plan for response actually saved the company both capital and reputational standing.

Bill Richardosn of the Sheffield Business School (1994, 2) argues that such anticipation of crisis is expecially noteworthy in a world where the norms of technology, science and international commerce are in a state of continual change:

> A major function of the management strategist is to know that something is going to happen and that it will be significant before it happens. The strategist does this through 'intuiting' about the future based on his/her knowledge and understanding of what happened yesterday and what is happening today. this 'anticipatory knowledge' is a particularly critical resource for the strategist working in the crisis management context. It helps him/her prepare to avoid crises.

Richardson continues (4) with a model for categorizing organizational crises that is both provocative and surprisingly inclusive. He argues that most disasters fall into one of four thematic arenas: organizationally-induced (e.g., Chernobyl), socio-technical (Union Carbide Bhopal disaster), business-economic failures (e.g.,hostile takeover) and sociopathic attacks on the organization (e.g., false allegations of syringes in cans of Diet Pepsi in 1993). Although some crises may not fall directly into one of these four categories, the vast majority appear to fit within this model.

Range of Events

The examination of crises for the research referenced in this paper included those across all four categories. Several of the more prominent examples include:

*poisonings of pharmaceutical products (e.g., Tylenol, Sudafed)

*major oil spills (e.g., in Pennsylvania by Ashland Oil and in Alaska by Exxon)

* violence in the workplace (e.g., McDonalds' in California)

* publicized reports of financial impropriety at service firms (e.g., American Express and bank of Boston)

* product defects and misrepresentations (e.g., A.H. Robins files for bankruptcy after thousands of successful claims regarding illness and death attributed to the Dalkon IUD)

* whistle blowing (e.g., Morton Thiokol engineers assert that they recommended against launch of the NASA Shuttle Challenger because an O-ring was inadequately studied at lower launch temperatures but that their recommendations were disregarded due to budget and political pressures)

* invasive intelligence gathering (e.g., Hitachi systematically stole patent and proprietary data from IBM over a three year period)

Since the author's research was first initiated, the tracking of new and emerging crises has continued, with more recent examples including:

* allegations of widespread internal fraud involving securities (e.g., Kidder, Peabody)

* alleged embezzlement of more than a billion dollars at single firms (e.g.,Phar-Mor)

* kidnapping and ransom demands against executives and their families (e.g., the president of Exxon international, Sydney Reso, who died at the hands of his kidnappers, and the daughter of Las vegas casino mogul Stephen Wynn, who was released unharmed)

* three major incidents upon cruise liners in a three month period in the summer of 1994 including food poisoning of 640 persons on a Royal Caribbean ship, fatal outbreak of Legionnaire's on another, and a fire upon a third vessel)

In a written survey to over 1,500 companies in 1992 (Barton, 1993) it was reported that only 27% of organizations with over one million in sales had developed a written CMP or another instrument to anticipate and plan or disaster.

Thus, despite widespread public awareness of the damage that can be caused by one of these events (Marra, 1993) it appears that the corporate sector is still unable or unwilling to embrace the commitments of time and finance required to prepare for disaster. Often, it is only when a company is on the fringe of a disaster (it serves as a supplier to a company so impacted, for instance) or when it has become directly involved in chaos (a senior executive is killed by a downsized employee) does the company begin to recognize the value of crisis preparedness (Moy, 1991,5).

A number of responses to the preparedness issue have evolved, including formal training of all senior executives worldwide, such as is the practice at British Petroleum and its subsidiaries, to written crisis plans, such as is the practice at AT&T. Many companies stage semi-annual, unannounced drills to test the alertness and the quality of decisions exercised by managers, including Arco, MCI and Shell Oil. Yet again, many of these preparedness tools were developed wither after the organization had itself experienced a crisis, or after a competitor had been so badly bruised that management recognized the value of a CMP or related tool.

Another evolving response tool involves computer simulations. Paul Shrivastava of Bucknell University developed one of the first decision matrix simulations in the late 1980's, and this program is used in several corporations where executives are tested on their ability to respond quickly to multiple stakeholder and internal demands imposed by a crisis.

The author/presenter developed a multimedia simulation for the U.S. Department of Energy in 1993 that is ow used in nuclear power plants and a number of corporate environments as well; this approach uses Macintosh technology and Authorware(R) to challenge the user in how to best respond to a bomb threat at a hypothetical manufacturing company in Illinois. Several other models are underway or in practice elsewhere.

In addition to the presence of written plans, simulations and training programs, the field of crisis management is emerging due to the presence of consultants and training firms who specialize in the industry. One major New York-based public relations firm, Burson-Marsteller, has an entire division devoted to helping companies embroiled or challenged by a crisis. Executives are trained in how to answer press and public inquiries, how to "package" the corporate story in community presentations, and how to effective respond to regulatory and agency demands that could threaten the ability of a company to retain its license to operate.

In addition, int he wake of the loss of 142 lives at the Kansas City Hyatt-Regency Hotel, in 1985, the field of failure analysis matured. Largely owned and staffed by engineers, these companies help regulators as well as clients understand the fundamental reasons why systems, machinery or other aspects of operations failed. their findings often supplement those of insurers and independent investigators in seeking to determine who, or what, were directly responsible for a catastrophe. The resulting report is often considered by a jury or judge in the arbitration of liability claims against the organization where the failure/crisis occurred.

Perceptions of Crisis Management

In an earlier work, it was asserted (Barton, 1991, 8) that the perception of the seriousness of crisis management as a management priority varies considerably, often based on the geographic location of an employer. For instance, 61% of executives surveyed int he Northeast U.S. consider crisis management a priority, while only 21% of those situated in the midwest hold the same view. A subsequent study is underway to determine the reasons for such a discrepancy, but some preliminary data suggest that the proliferation of lawsuits, negative press and community pressure from any one major incident often "triggers" such widespread recognition of a disaster that companies who were not directly impacted then begin to anticipate the need for readiness. unquestionably, because of population density, the presence of manufacturing facilities and other variable, the Northeast has suffered a considerably high number of corporate crises.

In addition, it should be noted that publicly-traded companies share a special responsibility int he event of a crisis because of the volatility related to stock price and investor confidence. As noted in Crisis In Organizations, Union Carbide lost 27% of its net asset value in the first two days following its chemical leak in Bhopal (Barton, 59).

Yet when Pepsi Cola faced unsubstantiated charges that syringes had been found in cans of its diet products in the summer of 1993, the price fluctuation of Pepsi stock was minimal, and even then only lasted for three days. One of the prime reasons who Pepsi executives feel that investor confidence was not shaken: the company had CMP in place, responded with filmed footage of plant conditions that discounted any assertion that tampering was possible, and the product was immediately pulled off store shelves out of concern for consumer concern. (Pepsi, 1993,16).

Signals

A fundamental question generated by this and related research involves whether organizational crises can sometime be predicted by the presence of signals. Signals include rumor, near-miss incidents, parallel events in competitor organizations, lawsuits

filed int he same industry, and numerous other "prompts." A survey conducted for one semiconductor giant (Barton,6) indicates that signals exist in 82% of major catastrophes, including workplace violence, product recalls and industrial sabotage, a phenomenal statistic that is currently being used as the basis for a third book.

Certainly both students and established scholars can learn much from the research protocol: Some questions are obvious (why are some industries and even companies more susceptible to disaster than others?) but others are more complex (how can an organization avert or reduce its exposure to risk via pre-crisis planning) These questions underscore the significance of the collective effort by corporation and scholars to determine the best course of action in preparing for one or more of these incidents as well as the best source to business resumption once they occur.

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The Occupational Profiles and On-the-Job Experiences/Perceptions of Business Management Technology and Computer Technology Associate Degree Graduates and the Resulting Curriculum Implications: A Comparison and Contrast Approach

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Abstract

The five-year follow-up study of the Business Management and Computer Technology graduates and their employers were conducted for the purpose of evaluating and updating the curriculums. The compilation of the responses provided insight into the graduates' perception of their curricular experiences and bias. The employers' survey provided the perspective of the graduate as an employee, thereby reflecting upon the general effectiveness of the programs. The relative similarity of the surveys from these two programs offers an opportunity for the comparison of their results and recommendations.

Introduction

The associate degree graduate is entering into a work environment that is very different from that of a few years ago. New technology and global competition are the driving trends of the information society. The role of associate degree programs is to bridge the education/skill gap of workers entering the job market and updating the ever changing skill requirements of current employees.

The success of any associate degree program hinges upon preparing graduates to be successful employees and to build a foundation to further their education and competency. Feedback obtained from graduates' and their employers' is a major source of information and evaluation of the effectiveness and student preparedness of a program. The critical area affected is the formulation of the curriculum. The graduate/employee follow-up integrates academia, business, and industry.

Purpose

The purpose of both of these studies was to identify occupational characteristics of business management technology and computer technology graduates. These studies also focused on determining the level of computer literacy needed by graduates of both programs in order to compete in the work place. These studies were conducted independent of each other in order to assess the differences and similarities between these two separate associate degree disciplines. The information gathered from these studies will be applied directly to enhancing the curricula of both.

Objectives

The purpose of these studies led to the formulation of the following major research questions:

1. What are the occupational profiles of the typical graduates of each program relative to:
   - *job title?
   - *earnings?
   - *type of employer?
   - *promotion, career advancement?
   - *additional college or training?
   - *professional development?
   - *professional memberships?
2. What did graduates enjoy most about their program?
3. What did graduates like least about their program?
4. What types of hardware and software are graduates using both in the workforce and to continue their education?
5. What are the major competencies/skills required by graduates within their profession?
6. What are the implications of these studies for curriculum changes in business management technology and computer technology associate degree programs?
7. What are the similarities and differences between these programs relative to curriculum development?

Methodology

Instrument

These studies were *ex post facto* research design utilizing the descriptive survey method to gather comprehensive data about the working world of associate degree graduates in both business management and computer technologies. The reliability of this instrument was developed by similar survey documents used in related associate degree program graduate follow up studies conducted by Kent State University Regional Campuses Faculty members.

Procedures

The questionnaires, cover letters, computer scoring sheets, and self addressed stamped envelopes were mailed to all graduates in the years 1987-1992. About three weeks after the initial mailing, follow up letters were mailed to non-respondents. One-two months after the second mailing faculty members made follow-up telephone calls to the remaining non-respondents.

Business Management Technology (BMRT) Findings

The graduates in Business Management Technology (BMRT) from the years 1988-1992 were surveyed in order to determine the outcomes of the objectives identified earlier. 375 surveys were mailed out. 81 of the 375 were returned giving a response rate of 21.6%. Employer surveys mailed out totaled 81 with 26 returned for a 32.1% response rate. Overall, 70 out of the 81 responses (87%) came from the three largest of the six Kent State Regional Campuses. This mirrors graduation totals from the campuses.

The first objective of this research was to determine the demographic profile of the BMRT graduates. Of the respondents: 64% were female while 36% were male, 77% of the responses graduated within the past three academic years (1990-1992), 67% were under the age of 28 when they entered the University, 52 % attended school on a part-time basis, with incomes fairly evenly distributed from $10,000-30,000. The typical BMRT graduate is female, graduated from one of the two largest campuses (Trumbull or Tuscarawas), entered the university before the age of 28, was primarily a part-time student working full-time earning approximately $15,000 per year. A majority of the respondents (47%) were employed in business service industries, while 13% were in manufacturing and 12% were in non business related fields such as medical programs or educational institutions.

The second objective of this research was to determine the occupational profile of respondents post graduation. Table 1 shows the current employment status of the respondents.

This indicates that at least 89% of the graduates are employed, several of those unemployed were by their own choosing. Table 2 is a break down of the annual earnings for full-time employees.

Table 1
Graduates' Current Employment Status

Status	Number	Percent
Full-Time	55	68.00%
Part-Time	15	19.00%
Unemployed	9	11.00%

This table shows a fairly even distribution of income over the ranges given. It is interesting to note that over $30,000 has the highest occurring frequency (23%). While over 53% of the graduates earn at least $20,000 per year

Table 2
Graduates' Current Full-Time Earnings

Amount $	Number	Percent
Under $10,000.	10	12.00%
$10,001-14,999	11	14.00%
$15,000-19,999	7	9.00%
$20,000-24,999	12	15.00%
$25,000-29,999	12	15.00%
OVER $30,000	19	23.00%

As far as types of positions graduates hold; over 45% are in business related service with manufacturing and non business accounting for about 15% each. The top three positions mentioned overall were office manager, human resources clerk and customer services representative with each about 6% of the total. As far as geographic mobility was concerned over 54% of the respondents are not willing to relocate to find a position. Table 3 shows the number of job changes by graduates since their graduation.

Table 3
Number of Job Changes Since Graduation

Changes	Number	Percent
One	22	27.00%
Two	11	14.00%
Three	7	9.00%
Four or more	3	4.00%
None	32	40.00%

Sixty-seven percent of the respondents have had 0-1 job changes while only 4% have had more than four. This indicates the graduate is fairly stable relative to job mobility. Table 4 evaluates the number reporting promotions since graduation. Fifty-six percent of the graduates report being promoted after graduation.

Objective three was to determine what graduates liked most about the BMRT program. Table 5 is a break down of the responses as to the overall satisfaction students had with the BMRT curriculum. Eighty-three percent of the respondents rated the curriculum as excellent (30%) or good (53%) while only 1% (one person) rated it as poor. In general graduates were satisfied with their educational experiences at Kent State Regional Campuses.

Table 4
Promoted Since Graduation

Response	Number	Percent
Yes	45	56.00%
No	30	37.00%

Table 5
Graduates' Overall Program Satisfaction

Response	Number	Percent
Excellent	24	30.00%
Good	43	53.00%
Fair	10	12.00%
Poor	1	1.00%
Very poor	0	0.00%

The graduates had many different responses when asked what they liked most about their program. In general they fell into three major classifications: instructor/classroom related, specific courses offered and miscellaneous. A majority (59%) of the total responses were from the first category. The top three responses were care given by the professors, the instructors' knowledge level and small class sizes. The top three courses were: *Case Studies, Seminar in Business* and *Personnel Practices*. Proximity to home and low cost were the most mentioned under miscellaneous. As far as relating the BMRT curriculum to their employment; 69% of the respondents apply the knowledge they obtained in their current employment position. 67% of the respondents claim the BMRT curriculum prepared them *very well* (16%) or *well* (51%). On the other end of the spectrum 5% rated their preparation as *not well prepared*, while 2% rated their preparation as *not at all prepared*.

Objective four is the opposite of objective three in that the intention was to find out what graduates disliked or felt needed to be improved in the BMRT curriculum. There were multiple responses to the question pertaining to specific dislikes. They fell into four major categories; instructors/classroom activities, specific courses, scheduling/format, and miscellaneous. The top category was instructors/classroom related activities (38%). The difference between the previous objective was that most of the responses focused on classroom activities and were not instructor related. The two biggest concerns were lack of upper division courses at the regional campuses and coursework not practical. The two courses most mentioned were economics and all non-business courses. Lack of articulation with Bachelors programs and lack of 2+2 programs were most mentioned under scheduling and format-related. Nothing was the highest occurrence under miscellaneous. (This was interpreted as an opposite response, ie the respondent liked everything about the curriculum). Table 6 looks at responses when asked if they would recommend this program to another person. This is probably the best indicator of a graduate's overall impression of their program experience. Sixty-five percent of the graduates would recommend the BMRT program to someone else.

Table 6
Would They Recommend the Program

Response	Number	Percent
Yes	53	65.00%
No	11	14.00%

In addition to finding out what graduates disliked, it is important to find out what additional things graduates needed to learn in the curriculum. The respondents again had multiple responses to this question. They fell into four major classifications; Business/Related Skills, People Related Skills, Computer Related Skills and Miscellaneous. Business Related skills received the most responses. Specific job related training and job search/career skills were the top two vote getters. Public speaking was the most mentioned under people skills, while computer operations and spreadsheets were tops in the computer skills category (under miscellaneous, nothing was the highest response. This again was interpreted as an opposite response). Finally, graduates were asked for specific suggestions that would better prepare graduates for employment. The responses were categorized as follows: scheduling/course related, general employment preparation and miscellaneous. Scheduling/course related accounted for 44% of the responses while general employment accounted for 45% of the total. The top five specific responses were improved computer literacy, provide a job placement service, provide work study programs, more evening courses and more upper division courses offered at the regional campuses. Other questions related to this objective were:

"Did you complete an internship?"
YES=10% NO=67%
"Do you wish you had completed an internship?"
YES=40% NO=43%
"Should you be required to pursue an option?"
YES=54% NO=27%

Few graduates completed internships while a large portion wished that they had. A majority of respondents felt that pursuing a specific option in their major was important. The common feeling was that this gave the graduate both direction in career choices and a specific set of skills to offer to their employer.

Table 7 lists the top five courses that graduates felt benefitted them in their careers.

Table 7
Courses Most Important in Business

Course	Number of Responses
Financial Accounting	20
Introduction to Computers	17
Case Studies	14
Introduction to Management	13
Personnel Practices	13

Table 8 lists the top four courses that were not useful in the graduates' career.

Table 8
Courses Not Useful in Business

Course	Number of Responses*
None ("All were useful")	18
Fine Arts	4
Introduction to Computers	3
Macro-Economics	3

*Note several had 2 responses

Objective 5 evaluates the computer usage by graduates and the types of hardware and software they are utilizing. Table 9 is the response of the graduates to the question asking if they use a computer on the job. A majority (64%) of the graduates use a computer on the job.

Table 9
Use of Computers on the Job

Response	Number	Percent
Yes	52	64.00%
No	19	23.00%

A majority of the graduates left the questions relating to specific types of hardware blank. From the responses that were obtained it appeared that most of the graduates used stand alone personal computers that were IBM compatible. Networked personal computers and mainframe applications were almost nonexistent. Only 4% of the total mentioned that they had a laptop computer. In response to software analysis, many more graduates answered this question. Graduates prioritized the following applications (on a 1-5 scale, 1= most used, 5=least used): WORD PROCESSING, SPREADSHEETS, PRESENTATION, GRAPHICS, DATA BASES, and OTHER APPLICATIONS.

Based upon the responses, the ranking is as follows:

1= Word processing
2= Data bases
3= Spreadsheets
4= Other applications
5= Presentation graphics

The specific manufacturers most mentioned in each category are as follows: WORD PROCESSING- *WORDPERFECT;* SPREADSHEETS- *LOTUS 123;* PRESENTATION GRAPHICS- *HARVARD GRAPHICS;* DATA BASES- *DBASE;* OTHER- VARIOUS.

Objective six of this research was to determine the effectiveness of instruction and the role it plays in giving students the necessary competencies and skills necessary in the working world. Overall graduates felt that the instruction they received benefitted them in their career. Ninety-two percent rated the overall quality of instruction as excellent (41%) or good (51%). None ranked it as poor or very poor. As far as instructor's knowledge of the subject material, 97% rated it excellent (59%) or good (38%). When graduates were asked the open question "how did the instructors stimulate an interest in learning?," many answers were received. Table 10 lists the five top ways the faculty inspired the graduates to learn.

Table 10
Ways Instructors Stimulated Learning

Stimulus	Number of Responses
Class projects and reports	11
Real world approach to teaching	11
Group work and discussions	10
Open classroom discussions	9
General teaching styles	9

Overall, students seem the most encouraged and stimulated to learn by instructors who encouraged student participation in the classroom. Real world approach to teaching and assigning of projects and papers related to the working environment was beneficial. Table 11 summarizes the totals of the five top skills and competencies of the worker of the 1990's. The leader by far was good written and oral communication skills followed by computer literacy and good interpersonal skills. It seems logical as the world moves towards the information economy, good communication skills, computer literacy and good interpersonal skills are a necessity to be an effective information conduit and productive employee.

Table 11
Top Skills Needed in Business

Skill/Compentency	Number of Responses
Good written & oral communication skills	35
Computer literacy	26
Good interpersonal skills; the ability to work with others	19
Better math skills	13
Human resources & organizational skills	10 (TIED)

In addition to the graduate surveys additional feedback was acquired from the employers of the graduates. Twenty-six employers agreed to complete a survey of their employees performance and apparent quality of education. Table 12 is a summary of the overall evaluation.

This table indicates that overall a majority of employers rate the graduates in the excellent, good or average range. Only one employer rated the employee the below average range in some categories and no ratings were given in the poor range. What is important to note is that analyzing the knowledge related, attitude and quality of work questions, most responses are in the excellent and good range. As you evaluate the *oral and written communication skills, interpersonal/human relations skills and computer literacy* the trend shifts towards more responses in the good and average ranges. These were the three competencies and skills most identified by the graduates, the employers have also identified these skills as important and also in need of improvement.

When the employers were asked "what areas are employees best prepared ?," they responded with positive attitude towards work (19%), quality of work (16%) and interpersonal skills (10%).

Table 12
Employers' Evaluations of Graduates

Category	Excellent	Good	Average	Below Average	Poor
Job related conceptual knowledge	31.00%	46.00%	23.00%	0.00%	0.00%
Job related technical knowlege	38.00%	35.00%	23.00%	0.00%	0.00%
Attitude towards work	58.00%	3.00%	12.00%	0.00%	0.00%
Quality of work	58.00%	23.00%	19.00%	0.00%	0.00%
Oral & written communication skills	12.00%	58.00%	27.00%	4.00%	0.00%
Interpersonal-human relations skills	35.00%	31.00%	27.00%	4.00%	0.00%
Computer literacy	15.00%	46.00%	19.00%	4.00%	0.00%
Managerial skills	23.00%	35.00%	31.00%	4.00%	0.00%
Overall job preparation	42.00%	32.00%	19.00%	0.00%	0.00%

When asked "Where is more preparation needed?," communication skills (8%), computer skills (8%) and interpersonal skills (8%) were the top responses. 42% of the employers chose to leave this question blank. When asked if graduates had a proper balance of business theory and application, 58% responded yes while 31% did not know. One person (4%) answered no.

When asked if they would hire another Kent State BMRT graduate, 88% responded yes. Again one person (4%) answered no. The demographics of the employers covered a broad range of types of businesses. Banking & Finance, Manufacturing and Education were the top three responses. 81% of the employers were from companies with less than 100 employees.

Conclusions from the BMRT Survey

The demographic profile indicates that a majority of the BMRT graduates could be classified as non-traditional students in the sense that they are not full-time students in the age range of 18-22. Since a majority are employed full-time and a large portion of the remaining group are employed part-time, it becomes apparent that BMRT courses need to do two primary things. First, they must give the graduate practical/application skills for job enhancement. Secondly, courses must be delivered in a forum that makes them accessible to the students. Evening and weekend courses are a must for the continued success of this program.

The analysis of the types of positions employing graduates shows a broad spectrum. They can be placed into three major classifications: Business Services, Business Manufacturing and Non Business. A majority of graduates are employed in the business service sector. Although manufacturing represented only a small portion (15%) of the total responses, it should not be ignored. A majority of the campuses are located near large manufacturing centers. An example of which is the Trumbull Campus located just up the street from Packard Electric Division (General Motors largest electrical parts plant) and just about five miles from the General Motors Assembly Plant in Lordstown, Ohio where the Chevrolet Cavalier is built. The implication here is that the curriculum should be as general as possible to appeal to this broad audience but also must incorporate specific business knowledge in specific fields. This can be accomplished by requiring students to pursue an option in their major and using technical electives (business electives) as a means to customize the program for each student. In order to give the student the flexibility and meet the needs of the year 2000, the faculty should look at creating options in the following areas:

- *Small Business Management
- *Retail/Sales
- *Manufacturing Management
- *Individualized major ie Banking/ Finance, Food Service

The evaluation of the graduates pertaining to job stability shows that a majority (81%) of had two or less job changes since graduation while 65% have been promoted within their company. A majority of the respondents, when queried about geographic mobility, elected to stay within the geographic region primarily served by their branch campus. This has a couple of implications related to curriculum. The BMRT graduate poll seems to be a fairly stable and conservative group. They are looking for job enhancement and to develop specific job skills to remain employed within local industry. The faculty should continue to work closely with local industry in order to maintain an applicable curriculum. Active advisory boards are a must and cooperative learning and internship programs should be given a high priority.

The analysis of graduates' satisfaction with the program showed 83% rated the program as excellent (30%) or good (53%). It is a firm belief that this satisfaction was derived from both the academic experience and the resulting employment opportunities their degree gave them. The three major areas of responses given when relating to what graduates liked most about their program were:

* Instructor/classroom related
* Specific courses
* Miscellaneous

Fifty-nine percent of the total responses were related to faculty and the quality of teaching. It was evident that students identified well with caring faculty members who could integrate their real life experiences with the textbook material. The implication here is that students require not only theory provided from textbooks but need opportunities to develop practical skills that can be applied to the working world. Instructors in BMRT should continue to assign projects and lead classroom discussions that extend beyond the theory area. Part-Time faculty are a critical component to add to the educational experience for the graduate. Three courses, *Case Studies, Seminars in Management* and *Personnel Practices* were all ranked high by the students in both like and job application. These courses should remain as part of the curriculum and be used to build the foundation for the student.

The areas that students disliked fell into four major categories:

*Instructor/Classroom related
*Specific courses
*Scheduling & format
*Miscellaneous

Instructor items comprised a small portion of the total. Comments related to this area were that instructors that were viewed as non-caring or too theoretical were not popular with graduates. A large number of graduates wanted to further their education and obtain a Bachelor's degree in business. Lack of upper division courses at the regional campuses and poor articulation with the College of Business at the Kent State Main Campus were common complaints with customers. Many graduates transferred to other institutions that were better able to articulate with the associate degree. In the future, the faculty at Kent State Regional Campuses should work to develop articulation with the College of Business including designing our curriculum to include the necessary mathematics and liberal education requirements. Students should meet with an advisor and be tracked early in their career as to whether they want an Associate degree, Associate-Bachelor's or Bachelor's. Regional Campus convenience is a big part of the experience for students. Currently upper division courses in business are only offered at the main campus (approximately 50 miles from each regional campus). The BMRT faculty and Regional Campuses Administration should also seek to get junior and senior level business courses throughout the system. The trade-off will be better preparation of associate degree students to do upper division coursework.

Concerning the overall impression of the program 65% of the graduates would recommend this program to another. This is driven by both the student's academic experience and improved opportunities for job growth.

The five courses graduates found most useful were: *Financial Accounting, Introduction to Computers, Case Studies, Introduction to Management* and *Personnel Practices*. *Financial Accounting* and *Introduction to Computers* are courses serviced by other departments. It is imperative that the BMRT Curriculum Committee maintain ongoing dialogue with the Accounting and Computer Curriculum committees to make sure these courses remain applicable to the BMRT curriculum. The other three courses are core courses within the BMRT curriculum and should remain as such. The courses students liked least were *Fine Arts, Economics* and *Introduction to Computers*. The BMRT faculty should take an active role in advising students pertaining to liberal education requirements. The benefit of a liberal education should be addressed. Students can be encouraged to take courses such as Speech, Psychology, Sociology or Math that would directly enhance their business skills.

A majority of 64% of the responses indicated that they used a computer while at work. When queried regarding hardware and software applications a majority of the responses were quite vague or blank. IBM and IBM-compatible were the most common hardware employed while word processing, data bases and spreadsheets were the most frequently used software applications. Computer literacy was a skill mentioned by both the graduates and their employers as critical to the success of the business person of the 90's. The results of these findings are that computer literacy must be expanded beyond one introductory course in computers. BMRT courses should be evaluated on an individual basis and appropriate computer applications should be added. Graduates should be able to use a word processor, spreadsheet and database program. An understanding of elementary programming in a language such as C would be a plus. The student should also be given an understanding of networks including Internet and other communications type networks. This

could be incorporated in the *Introduction to Computers* course. The BMRT faculty may also consider team teaching approaches with computer faculty or asking computer faculty to provide ongoing training and workshops. It is critical that the business faculty members build strong ties with the computer faculty.

The results of how faculty encourage learning and maintain interest in business show that interactive teaching between faculty and students and the assignment of real life projects work well for students. Many enjoy group activities and group process. The faculty should find ways to move away from the traditional lecture mode of class. Students teaching students, group projects with group grades and team learning groups can be integrated into all business management courses.

The top skills/competencies needed by business persons as identified by the graduates are:

- *Good written & oral communication skills
- *Computer literacy
- *Good interpersonal skills; the ability to work with others
- *Better math skills

The approach that should be taken here is a systematic one that is comprehensive, starts with the beginning courses and builds into the higher level courses. *Writing Across the Curriculum* would require appropriate practical writing assignments in every business course and would enhance student's overall writing skills. Group and individual presentations incorporated into specific classes would address oral communication skills. Computer literacy can be addressed two ways, first with an overall computer literacy course and second, by implementing computer projects into various business courses. Enhanced interpersonal skills could be accomplished by stressing diversity while in the classroom. Courses such as conflict resolution, psychology and sociology can give students better understanding of both groups and individuals. *General Psychology* or *Introduction to Sociology* should be required liberal education requirements. Better math skills can be implemented similar to computer literacy. *College Algebra* can be made a requirement, a business finance course stressing calculations can be added to the curriculum as well as math applications in specific business courses.

The analysis of graduates by employers shows that job knowledge, quality of work and attitude towards work are areas of strengths for BMRT graduates. Trends indicate though that graduates are less prepared in the areas of oral & written communication skills, interpersonal skills and computer literacy. These also are the areas identified by employers where graduates need more work and practice.

In summary, the curriculum implications of the BMRT study are as follows:

1. Written & oral communication skills enhancement is a part of all courses not just *English* and *Speech*.

2. Interpersonal skills must be enhanced by teaching things such as diversity in the workplace, conflict resolution, etc should become a part of all courses especially *Personnel Practices* and *Introduction to Management*.

3. Computer Literacy is needed in more courses than *Introduction to Computers*. Computer projects and training should be incorporated into each business course.

4. Math skills can be enhanced by adding *College Algebra*, Adding a *Corporate Finance* course and additional mathematical applications to business courses. Math can easily be integrated with computer literacy.

5. The curriculum in general should remain intact as far as core business classes are concerned. Students should pursue an option or customize an option with an advisor to meet their own specific needs. Small Business Management, Manufacturing Management and Marketing/Sales would be initial options.

6. Internships and cooperative learning should be adopted as part of the curriculum.

7. Pedagogy should evolve from lecture to interactive classrooms. Group projects, interactive discussions and students teaching students should be encouraged.

8. The importance of a liberal education should be emphasized.

9. Articulation agreements with the Kent College of Business and other institutions. The faculty and Regional Campuses Administration should push for upper division courses at the Regional Campuses.

10. Convenience, controlled costs and evening & weekend formats are a must to meet the needs of students.

Computer Technology Findings

Employment Profile

More than 90 percent of the respondents indicated they are currently employed, 77 percent responding found new employment following graduation, 83% of those employed are in a computer-related position. Over 37 percent of the respondents have the title of *programmer* as inclusive of their position classification. Table 13 lists the position titles as supplied by the graduate respondents.

Table 13
Current Computer-related Job Title

Job Title	Frequency
CNC Operator Programmer	1
Computer Analyst/Programmer	1
Computer Consultant Programmer	1
Computer Engineer	1
Computer Operator/Receiving Manager	1
Computer Operator Systems Admin	1
Computer Technician	2
Corvision Developer	1
Data Entry Clerk	1
Design Engineer	1
Director, Customer Support	1
Director, Information Systems	1
Electrical Engineer Assistant	1
Information System Specialist	1
MIS Coordinator/Accounting Clerk	1
Owner/Software vendor	2
Programmer/Accountant	1
Programmer/Analyst	5
Programmer/Customer Service	1
Programmer/MIS Manager	1
Sr. Programmer Technician	1
Systems Analyst	1
Supervisor, PC Interfaces & Microcomputer Security	1
Total	29

Of all those graduate respondents employed, over half have had promotions or career advancement since graduation. Over 78% of those employees are involved in the service sector (tertiary) of the economy predominately representing medical services, education, and retail (Figure 1).

Major Job Responsibilities

Graduate respondents ranking of the five major responsibilities in their current position resulted in a list of 14 different activities. The four most frequently cited were: *User support, software system management, programming,* and *programming analyst.* In order to accomplish their tasks, the graduate respondents used a total of 21 hardware vendors and 15 different versions of operating systems.

The micro-computer (PC), was the most frequently used (46%). Figure 2, represents the proportion of computer types used. It should be noted that an individual graduate employee may be required to operate more than one type of computer to accomplish their duties. As may be expected given industry popularity, *MS-DOS* and *MS-Windows* were amongst the most prevalent OS listed. The most frequently used software were procedural languages, followed by word processors.

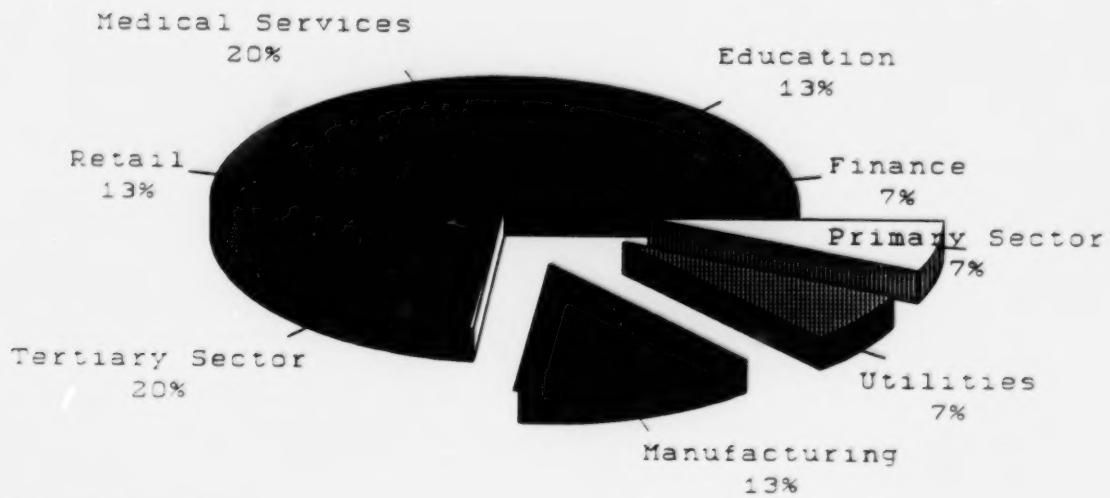

Figure 1. Employer Classification

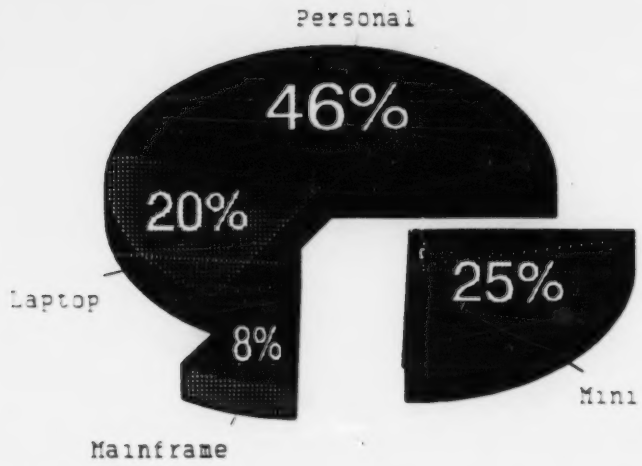

Figure 2. Types of Computer Systems Used

Professional Activities

Over half of the respondents have participated in computer-related professional development activity since graduation. Nearly half of the respondents have completed additional coursework beyond the associate degree (Figure 3). Of these 32 percent have completed an additional associate degree with 14 percent of these at a Kent State University regional campus. Fifty percent of the respondents have taken additional coursework at a Kent campus, 70 percent of these took additional computer-related coursework. Over 24% of the respondents' belong to a professional organization with the Data Processor Managers Association (DPMA) representing 40% of those replies.

Quality of Curriculum Experience

Eighty-five percent of the respondents indicated they would recommend the program to others. The basis for their satisfaction was evenly distributed amongst the faculty, the curriculum quality, and employment opportunity (Figure 4).

Graduate respondents identified *Programming*, as the most relevant are of study for currently enrolled majors. They identified *Networking* and *Hardware Management* as the most relevant subjects not covered in their program, and they would have liked to have had more experience in *Software Development/Design*. Conversely, the graduates identified COBOL (16%) and FORTRAN (11%) as the least useful computer subjects, and Psychology (14%) as the least useful liberal education course. Figure 5, demonstrates that graduate respondents were evenly split over their belief that the Computer Technology curriculum prepared them either very well (21%), well (24%), or marginally well (45%).

Employers were requested to rate their computer technology graduate employee(s) according to seven criteria (Table 14).

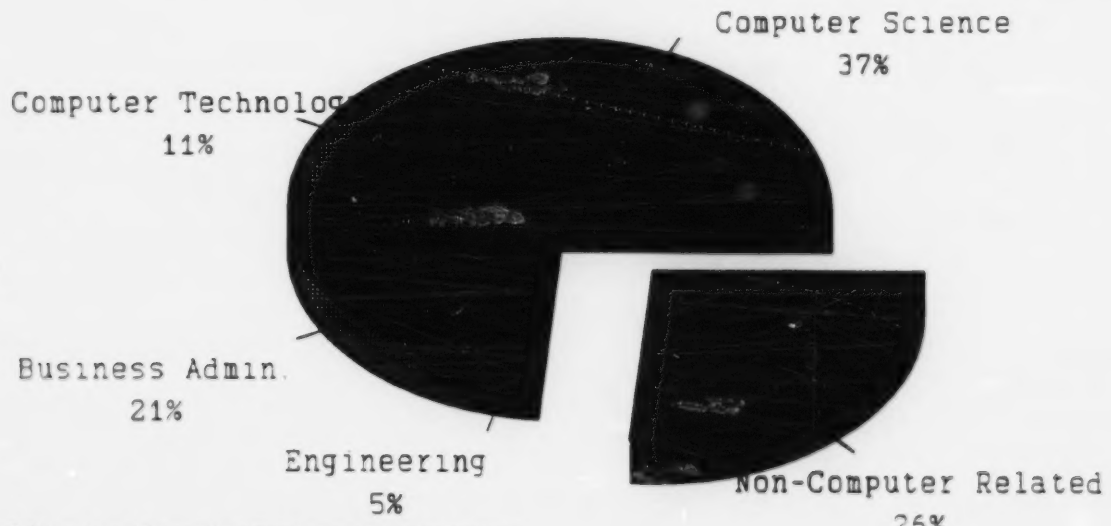

Figure 3. Subject Areas Pursued by Graduates after Graduation

Table 14
Employer Rating of KSU Graduate

	Excellent Percent	Good Percent	Fair Percent	Poor Percent	Very poor Percent
Job-related conceptual knowledge	35.7%	57.2%	7.1%		
Job-related technical knowledge	42.9%	50%	7.1%		
Attitude toward work (Professionalism)	57.1%	35.7%	7.1%		
Quality of work	64.3%	28.6%	7.1%		
Oral and written communication skills	35.7%	50%	14.3%		
Interpersonal human relation skills	28.6%	57.1%	14.3%		
Overall job preparation	21.5%	71.4%	7.1%		

A quick glance at the table may leave only the impression that there are no responses in the right most categories (Poor, Very Poor). However, conceptual knowledge (problem solving), and the two criteria which consider communication skills indicate a shift downward in graduate competency.

When queried as to the graduate employee's strongest area of preparation, employer respondents indicated *job-related technical knowledge* (25%). Employers also listed *interpersonal human relation skills* as the area most needing improvement. In terms of computer curriculum, thirteen different areas of study were generated by employer response. Employers stressed that the students needed to exposed to a broader range of *software development application* exercises. The three other most frequently listed are: *Networking, Database Design*, and *Job-related Conceptual Knowledge*.

Graduates' Recommendations for the Computer Technology Program

A copy of the Computer Technology Curriculum effective for Fall 1993 was enclosed with the survey and the graduates were asked to comment. As would be expected, these comments were based on their personal experiences. However, certain subject areas were repeatedly mentioned as being necessary. These were: courses in *C(+,++)*, courses in networking (*LAN*), courses in *RPG*, and courses in database management and design.

Additional curriculum/program recommendations generated by the survey's are:

- *Not to <u>require</u> a *COBOL* course, but keep as an elective.
- *Require a meaningful internship for those students who may not already have a practical computer-related work experience.
- *Require an applications course using a relational database.
- *Strengthen the conceptual components in pedagogical presentation.
- *Strengthen the interpersonal component of the liberal education requirements.
- *Require cultural diversity coursework.

Conclusions Drawn From the Computer Technology Surveys

*Of the 159 surveys sent to graduates 82 (52%) are male and 77 (48%) female (Figure 6).

Male response rate was 28 of 82 graduates (34%).

Female response rate was 12 of 77 graduates (16%).

The computer technology program seems to be successful in terms of achieving a gender balance. The difference in male/female response rate may have affected the survey data and interpretation. Whether or not there are latent gender concerns embedded in the computer technology program could not be ascertained by this survey.

*Of the 159 surveys sent to graduates, none were queried as to racial or ethnic origins.

There was no way to evaluate if the minority representation within the student body or in the constituent community is reflected in the graduates of the computer technology program. That this aspect of student demographics was overlooked may represent a "*gap*" in the conceptual attitude and/or the mission of the program.

* Of the 159 surveys sent to graduates, none were queried as to their age at time of graduation.

There was no way to evaluate if the traditional/non-traditional representation within the student body or the constituent community is reflected in the graduates of the computer technology program. That this aspect of student demographics was overlooked eliminates for consideration insight into the function that the program has within the regions socioeconomic situation. That is to say, does the program serve to <u>*educate*</u> or to <u>*re-educate*</u>.

*Of the 143 surveys delivered to graduates, there were 41 responses (28.7%).

There are 118 (74.2%) 1987 -1981 program graduates whose

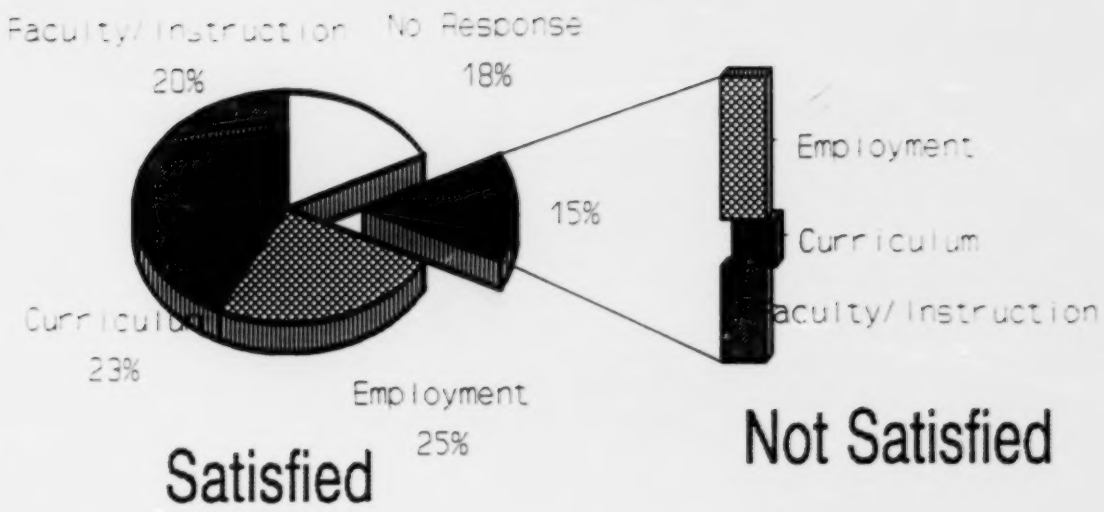

Figure 4. Student Satisfaction with Overall Program

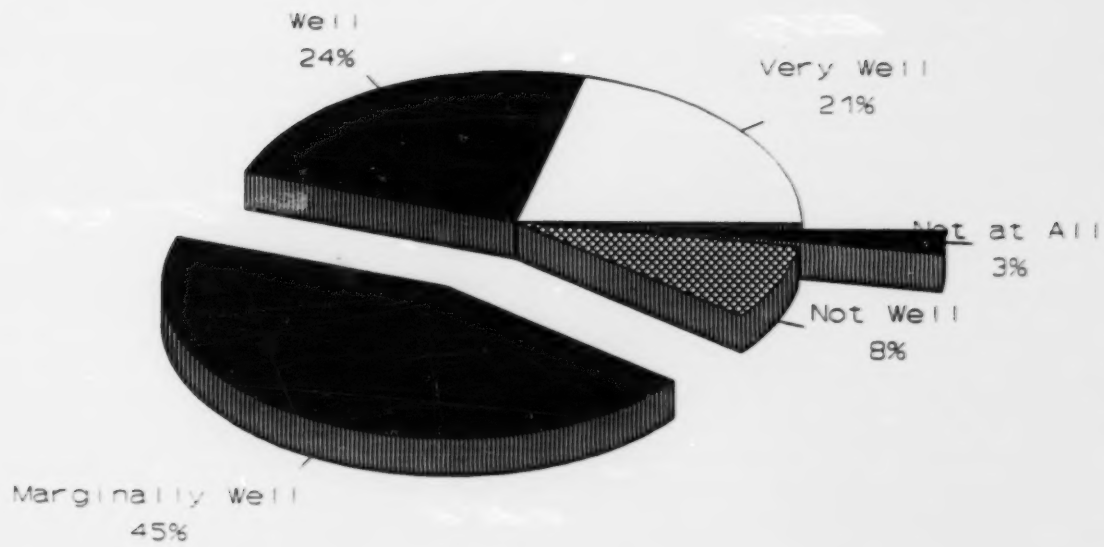

Figure 5. Curriculum Preparation for Employment

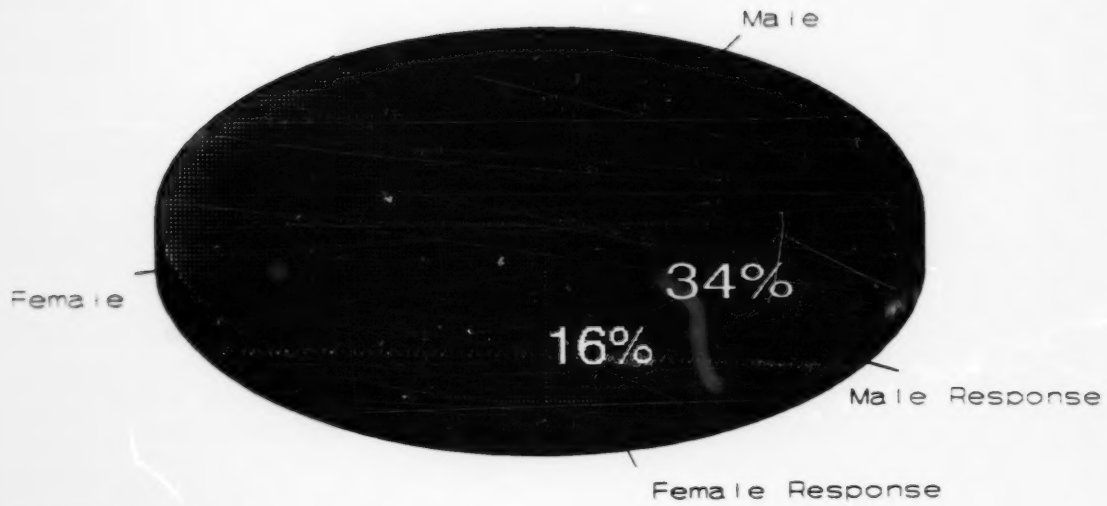

Figure 6. Male/Female Response Ratio

experiences are not part of this survey. To this number an additional 115 graduates can be added. This additional number represents the classes of 1992 -1994. Therefore, the recommendations upon which the curriculum may be altered is derived from the opinions of 17.6% of recent program graduates.

*Of the 31 employers identified by the graduate respondents 14 (45.2%) responded.

The response rate of the employers is far more acceptable than that of the graduates. However, when placed in perspective, 14 employers from six campus communities represents 2.3 employers per community.

*The graduate survey reveals that 75% (n= 30) of the graduate respondents are employed in a computer-related field.

If the proportion of graduate respondents is projected to include the pool of graduates selected for the survey (n=159), there would be a potential total of 119 graduates employed in a computer related position. This translates into a probability of an additional 88 employers who may conduct business within the regional campus communities (an average of 20 employers per campus). Therefore, the survey reflects the opinions and needs of 11.8% of the potential employers in the region.

*The recommendations for the computer technology program in this study are based on responses from 1987-1991 graduates.

The relative time which has elapsed since 1987 (or even 1991), is accelerated when evaluating changes in the computer industry. Literately, today's state-of-the-art is tomorrow's obsolescence. Given this, what can be derived from the surveys which is applicable to the program?

*The surveys sample only what the program has *accomplished in the <u>past</u>!*

Depending on the reader's attitude, the overall interpretation of these surveys can be a pat-on-the-back for a job that has been well done, or they can be viewed as an exercise which establishes a limited database. In order to derive *predictive* rather than *contemporary* recommendations, the interpretation of the data can not be an isolated event. It must be viewed from a *holistic* perspective.

*The commentary and data from these surveys discloses the wide range of computer hardware/software currently in use.

The potential diversity of equipment is further emphasized by the relative sample size of both surveys. Therefore, the short-range curriculum needs of each member campus is both *limited* and *diverse* at the same time.

This paradox cuts to the core of the program mission. Is it the goal of the program to *educate a workforce* for the local *community*, or to *educate the individual* student to be *employable*?

*The number of graduates in the program has waxed and waned, reaching a high of 120 students in 1984, to 23 students in 1990, and climbing to 44 in 1994.

This undulation may be indicative of the interest in the program, demand for the skills provided by the program, and the changes within the computer industry. It is imperative that the administration and faculty understand the factors which affect

program enrollment. The computer technology program must be dynamic and evolve along with the computing needs of the society.

*There is a new education paradigm forming which is inclusive of the government, business and industry, secondary education, and higher education.

Applied Technology is the basis upon which the consortium of these social institutions is formed. *TECH-PREP*, the *Education-to-Work Opportunities Act of 1994*, and the *Ohio Board of Regents "Performance Measures for Service Expectations for Ohio's Two-year Colleges & Regional Campuses"* are protocols whose implementation will have impact not just on the university system in general, but also specifically the computer technology program.

In addition to these social mandates for "seamless" education are the technological aids of *multi-media*, the *Internet*, and *distance education*. Given the totality of the soci-tech combination, it is apparent that *computer literacy* as a employee survival skill is paramount. Therefore, the following further recommendations are made for consideration:

Further Recommendations

*The fundamental decision should be made to supply the academic needs of the marketplace within a economically and culturally diverse high-tech society.

*The commitment of resources on a continuing basis should be made in order to maintain hardware and software parity within the changing technological environment.

*The participation by the university (regional campuses), in the consortium formed by the educational paradigm will change the mission and goals of the computer technology program by broadening its application within the curriculums of all disciplines.
Therefore:

* This will necessitate the support of continuous professional development for those faculty affected by the changing paradigm.

* Because of the overwhelming variety and rapid revision of software(s), it is possible for the computer technology faculty to have or develop *expertise* in limited subject areas.
Therefore:

* Computer technology faculty software specialization is necessary.

*Computer technology faculty should be encourage to determine their expertise and supported in their efforts to achieve it.

*Since the financial and personnel resources of each campus in the system are limited, the sharing of computer faculty expertise can be achieved through offering a unified distance education schedule whereby individual topics of limited clientele become viable courses.

**Introduction to Computer Systems*, should be renamed *Computer Literacy* and be required course for <u>all</u> degrees (Associate & Bachelor).
Therefore:

*The focus of an introductory computer course should be <u>computer literacy for everyday use</u>. At a minimum, include the basic conceptual knowledge of how a computer works, manipulation of a window environment, word processing, and use of the Internet.

*The pedagogy of a generalized computer literacy course requires a special expertise and is inclusive of the aforementioned faculty specialties.

*Explorer alternative methods of pedagogy; group or cooperative learning possibilities.

*Due to the educational paradigm and the rapid change associated with the computer industry, a new graduate survey should be prepared and sent out during the Spring 1995 semester and include the 1992 - 1994 computer graduates.

* Additions to the current survey should be made. At a minimum, these should include determination of the racial or ethnic background of the graduate, and their age at the time of their graduation from the program.

*Due to the rapid changes that take place within the computer industry, a graduate survey should be conducted every two years beginning the 1997 spring semester.

Survey Comparisons

It is evident that the curricular objectives of the COMT and BMRT programs differ. The Business Management programs serves to educate a business generalists who *uses* the technology. Whereas, the Computer Technology program strives to instruct a specialist who creates, manipulates, or supports the application of technology. Table 15 demonstrates that commonality between the two programs can be derived from employer perceptions as to what constitutes necessary peripheral skills of an employee. These skills are:

- Oral and written communication skills.
- Conceptual knowledge (problem solving skills).
- Interpersonal/human relation skills.

It may be argued that these skills are not the primary responsibility of the faculty within the discussed disciplines. However,

Table 15
Employer Rating of KSU Graduate (BMRT & COMT)

	Excellent		Good		Fair		Poor		Very poor	
	BMRT	COMT	BMRT	COMT	BMRT	COMT	BMRT	COMT	BMRT	COMT
Job-related conceptual knowledge	31%	36%	46%	57%	23%	7%				
Job-related technical knowledge	38%	43%	35%	50%	23%	7%				
Attitude toward work (Professionalism)	58%	57%	30%	36%	12%	7%				
Quality of work	58%	64%	23%	29%	19%	7%				
Oral and written communication skills	12%	36%	58%	50%	27%	14%	4%			
Interpersonal human relation skills	35%	29%	31%	57%	27%	14%	4%			
Overall job preparation	42%	22%	32%	71%	19%	7%				

to defer the burden of competency to elective coursework faculty conveys a misunderstanding of the educational paradigm which is paramount to the future of technical training. It is the responsibility of the faculty of these and other applied technology programs to support or re-enforce the development of these skills through their pedagogy. Both survey conclusions encourage alternative forms of instruction through student participation in the *process* of learning.

Inclusive in the incorporation of the student in the process of learning are *problem-solving* methodologies. A traditional method in the instruction of problem solving has focused on algorithmic (math) skills. These type of exercises are integral to the application of *job-related conceptual knowledge.*

Computer expertise is an inherent goal of the Computer Technology program. However, the recognition of the necessity for *computer literacy* amongst graduate employees of the Business Management Technology and other associate degree programs impacts the curriculum of each.

In summary, the major benefit derived from the correlation of these two studies (in addition to the affirmation of the above generalities), is the realization that the tools of technology have forged an interdependency between the disciplines. The future curricular structures must reflect this integration. Computer technology faculty must expand beyond the confines of their own program curriculum and take a cooperatve part in the formulation and presentation of coursework in support of other degree programs.

Preparation to Teach Problem Solving, Decision Making, and Evaluation Skills in Business Education

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Abstract

Three thinking skills served as the basis for this study—decision making, problem solving, and evaluation. National Association for Business Teacher Education (NABTE) member colleges and universities were surveyed and asked to provide instances when students in their business education methods courses were taught how to develop these skills with future students. Fifty-six respondents, representing slightly more than 25% of the NABTE institutions, provided 75 examples of instructional strategies used to teach the three skills. Forty of the strategies were classified under two themes: (a) higher-order skill development and (b) teaching methodology. Procedures used and classification schemes developed set the stage for continued research in the area of higher-order skill development.

Statement of the Problem:

Being able to think critically has always been an important skill, but in the information age, where many workers are now known as knowledge workers, possessing the skill to think critically is all the more important. Thinking skills are described in the Secretary's Commission on Achieving Necessary Skills (SCANS) report as foundation skills that "competent workers in the high-performance workplace need" (U. S. Department of Labor, 1992, p. xiv). Beyer (1987) in a synthesis of research on Practical Strategies for the Teaching of Thinking reported the need for teaching thinking. He also noted that "information seems to be extraordinarily slow in filtering into our teacher training programs, into the practices of ... secondary and postsecondary classroom teachers, and into the textbooks and other instructional materials used in our classrooms" (p. xvi).

Thinking skills are learned through conscious attention to the processes involved in thinking. Educators must incorporate strategies for teaching thinking skills in their instruction and give students opportunities to apply these skills and learn how they can be transferred to new situations. The problem of this study was, therefore, to examine strategies that prospective teachers in one area, business education, are taught in methods courses to develop their students higher-order thinking skills.

Related Literature

Three types of thinking skills serve as the basis for this study—decision making, problem solving, and evaluation. Presseisen (1987) defined decision making as utilizing basic cognitive or thinking processes to choose the best response among several choices. Decisions are made based on information available at a given time, and as more information becomes available the decision improves in quality. Problem solving according to Presseisen is utilizing basic cognitive thinking processes to solve a known obstacle. This differs from decision making in that the results of problem solving may be generalizable. For example, observation of secondary school students in Baltimore has shown better problem solvers strive to clearly represent the problem. Evaluation, the third thinking skill of the study, was added by the panel of experts who reviewed the study procedures and instrument development. It involves assessing the performance, product, or process of self or others using specific criteria.

Berlin and Sum (1988), Bishop (1988), Dronka (1988), and Fitzgerald (1986) examined the skill levels, including thinking skills, of workers in the U.S. and found them to be deficient. Anderson and Stewart (1989) indicate that no clear rationale explaining why today's workers lack higher-order skills exists. Their conclusion is based on results of a 108-item literacy test administered to and direct observations of employees at a Pennsylvania manufacturing company. Their study included 20% of the company's 560 employees. Carnevale, Gainer, and Meltzer (1988) note that employees' abilities to use higher levels of skill are directly related to staying competitive in a global economy. Thus, today's teachers need to be able to teach higher-order thinking skills.

Methods and Procedures

Through meetings held with two panels, (a) one a group of educators from Oklahoma universities and colleges and (b) the other a group of nationally known business teacher educators, a survey instrument was developed. The first page requested information about the title of a business education methods course taught by each respondent, a description of it, it's length in time, and the number of credits for it. The next three pages were the

same, each requesting a description of an example of an activity from the course that focuses on developing the ability to teach higher-order thinking skills. Following the description, the respondent indicated whether the example was one that addressed problem solving, decision making, evaluation, or any combination of the three skills. In addition, the respondent gave estimated number of class hours and out of class hours used for the activity. Finally, the respondent indicated how development of the skill is measured or evaluated

The respondents were also sent a cover letter explaining the study, defining the three skills, and giving a brief example of a teaching strategy for each. To help respondents complete the survey, the final page (printed on different color paper) provided a completed example of a description of a higher-order skill activity, one that involved a combination of problem-solving, decision making, and evaluation.

Data Source

National Association for Business Teacher Education (NABTE) member colleges and universities were selected as the population for the study. The survey instrument along with a self-addressed, stamped envelope, was sent to individuals listed as contact persons for each of the 212 institutions who were members of NABTE in December 1992. Follow-up calls were made to nonrespondents in February and March, 1993. Messages were left for individuals not available. In some instances, nonrespondents requested replacement instruments. In all, responses were received from 56 individuals. After it was determined that no further responses would be received, a phone survey of 10 nonrespondents was conducted to determine why the survey instrument had not been returned. These individuals indicated that either they did not remember receiving the survey, had forwarded it to another faculty member, or no longer had a business education program.

Findings

Thirty-five different course titles were reported; ranging from Professional Preparation for Teachers of Vocational Business, to Methods of Teaching Basic Business, to High Technology Office Methods. Eight respondents reported teaching on the quarter system, 19 on the semester system with course hours ranging from 1 to 5. Some respondents noted the courses they teach do not extend over a semester or quarter but, instead, are taught on a two- or three-week intensive basis.

The 56 respondents provided 75 examples of instructional strategies used to teach the three higher-order skills. The researchers categorized them in themes as follows

10 Technology (6 overlapping other categories)
12 Basic Business (5 overlapping)
7 Communication (3 overlapping)
28 Higher-Order Thinking Skills Development (12 overlapping)
38 Teaching Methodology (14 overlapping)

Thus, 40 of the instructional strategies were classified under two of the above themes (55 non overlapping + (1/2)40 overlapping = 75). Following are examples respondents provided for each of the themes along with their designation of the thinking-skill(s) used.

Technology: Students are given an in-basket exercise in office procedures (demonstration lesson). Students must set priorities, proofread for obvious and hidden errors, keyboard certain exercises, check calculations, and understand various terminology. (problem solving, decision making, and evaluation)

Basic Business: Students are asked to respond in writing to statements such as: "You are thinking about buying an automobile for $8,000. Before you make your final decision, list the questions you need answered. The students assume they have a job for 12 hours a week at minimum wage and $2,000 in a savings account. (problem solving, decision making, and evaluation)

Communication: A case problem requires a follow-up letter to an interview with a company that pays travel expense to the interview and return. The student must compose a letter and have the class critique it for incorporation of psychology of good letter writing principles. The student then revises and presents a model letter to the class. (decision making and problem solving)

Higher-Order Thinking Skills Development: Students write objectives at the application level or above on Bloom's taxonomy and develop corresponding instructional activities to address the objectives. (decision making)

Teaching Methodology: Students are assigned chapters from a high school accounting textbook. Students must prepare and present a review session for an ensuing examination before their peers. They are also videotaped. In advance, students are instructed to use positive reinforcement. (problem solving and evaluation)

Conclusions and Recommendations

This study was an initial effort in determining the current status of thinking skill development in business teacher preparation. The 56 respondents represented just slightly more than 25% of the NABTE institutions, indicating a somewhat limited interest in teacher educators' sharing information about how they prepare prospective teachers to teach thinking skills. The 75 instructional strategy examples detailed by the respondents provide (a) base-line information about perceptions of how teaching the three thinking skills might be addressed as well as (b) actual examples useful for teaching the skills. Further, the procedures used and classification schemes developed for the study set the stage for continued research in the important area of higher-order thinking skill development.

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Ratings of the Georgia Business Education Industry Certification Standards by Georgia Educators and Business and Industry Personnel

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Abstract

This study asked a sample of the Georgia business education teachers and Georgia business personnel to rate the 80 Business Education Industry Certification Standards developed by the Greater Atlanta Chapter of the Society for Human Resource Management and the State Department of Education. The major finding was that the educators and business and industry participants rated the standards very differently. The educators rated the standards higher than the business and industry personnel. When given the opportunity to provide written comments regarding the standards, the participants' comments were negative and focused on the lack of funds, lack of flexibility, and requirements that were too strict.

Introduction

The issue of standards is becoming more and more important in both our society and our educational system as a measure of competence. Even though American educators have struggled with the problems of standards for almost 200 years (Wentling, 1985), standards have been utilized throughout the history of American education. The issue of who or what should drive the curriculum has been a long-standing dilemma. A business education program of study developed without input from the business community would surely be lacking some necessary components. However, a curriculum designed solely to meet the needs of the local business community presents an equally frustrating dilemma. Therefore, the optimum situation is to have a partnership between educators and the business and industry community to help develop the best programs of study.

Historical Perspective of Educational Standards

Three educational eras dealt with the use of standards. First, the "Common School Movement" (1830-1880), conceived by Horace Mann, was known as "education's first step toward standardizing education for America's youth" (Wentling, 1985, p. 3). The major goal of this educational era was to provide students with the basic education to prepare them for employment and political involvement.

Second, the "Progressive Era" (1890-1920) involved two groups of progressive individuals. One group consisted of business-oriented people who believed that the school's curriculum was impractical and "failed to serve the requirements of business and industry" (Wentling, 1985, p. 3). Even though Charles Prosser was a progressivist opponent, he suggested that schools be restructured to serve the nation's economic system (Lucus, 1984). One of Prosser's sixteen theorems on vocational education states "vocational education will be efficient in proportion as the environment in which the learner is trained is a replica of the environment in which he must subsequently work" (Prosser & Allen, 1925, p. 194). A reinforcement of Prosser's beliefs came with the enactment of the 1917 Smith Hughes Act which involved (a) a separate system of education, (b) training workers to meet the nation's manpower needs, and (c) training limited to preparation for jobs that require skills and academic abilities below the college level (Lerwick, 1979). These beliefs, promoting Prosser's own beliefs, led schools to begin to educate students with life skills to prepare them for their desired or probable life after school.

Third, the "Age of Sputnik and Beyond" (1957-1984) brought about standards for math and science curricula as the public began to lose confidence in the school systems. Lapointe and Koffler (1982) noted that the public's "confidence in education had waned to such an extent that the community at large was no longer willing to sit back and leave the system in the hands of the educators" (p. 5). 'Change' is the current controversy in vocational education today. This debate presents the problem that "the issue of change has resulted in confusion in field policies and practices" (Lerwick, p. 15). The question of whether or not vocational education "is job training or much more than that" (Lerwick, p. 14) is a confrontation in the current limelight. Ironically, though, change has always been a factor in designing and implementing vocational education programs.

The Link Between Business and Education

It is a realistic goal that students be able to learn from their classroom experiences, enter an occupation of their choice and/or pursue higher education, and be successful. However, many

teachers and business personnel feel as though public education is not accomplishing this goal and changes need to be made. As noted by the Center for Remediation Design (CRD, 1991), the link between the training of workers and job standards set by industry is a weak one.

It is difficult for business educators to keep up with the constantly changing needs of their community; and historically, schools have not been successful in keeping up with changes both in the workforce (CRD, 1991) and with technology. Business and the community need to be cooperative parts of these constant changes. Watkins (1991) states "employers should foster learning linkages between providers, educators, and government and should invest in occupational preparation for the 50% of high school graduates who do not go on to postsecondary education" (p. 246). A strong line of communication and cooperation between industry and education is essential for appropriate skill development in these young people. It is also noted that the nation's governors urge "an ongoing dialogue with employers to define workforce competency standards that reflect the changing skill requirements of the workplace" (CRD, 1991, p. 1). However, the Secretary's Commission on Necessary Skills (SCANS Report) has noted that work has changed more rapidly than preparation programs (CRD, 1991). This continues to be a problem for workforce preparation programs and seems likely to continue into the future.

Certification and Accreditation Defined

Industry accreditation of an education program is voluntary and is one method of identifying and specifying employer skill requirements. Program accreditation also seeks to assure that the program completers have the competencies needed in the workplace (CRD, 1991). Accreditation is "often time seen as both developmental and regulatory" (Wentling, 1985, p. 7). Accreditation is seen as developmental as it helps develop program areas and is designed to further growth and bring about improvement. Accreditation is regulatory because it is concerned with making regulations to enhance this growth. As defined by Stoodley (1983), "accreditation is a status granted an institution or specialized unit that has undergone the accrediting process and has been judged to meet or exceed general expectations of educational quality" (p. 42).

"Accreditation (often used synonymously with certification) is an official determination that a model is acceptable for a specific purpose" (Davis, 1992, p. 12). Consequently, if accreditation (certification) is given when standards have not been appropriately rated by those groups involved, those giving the approval may be doing so to a system that may be inappropriate for the situation.

Accreditation, as described in a Center for Remediation Design (CRD) study, is defined as the process of evaluating and recognizing a program of study as meeting predetermined standards or qualifications. The generic ideas and regulations behind industry accreditation are listed below.

1. Industry accreditation of an educational program is voluntary.
2. Program accreditation by industry has a direct relationship to quality outcomes rather than the processes used.
3. Program accreditation seeks to assure that program completers have the competencies needed in the workplace.
4. Educational institutions desire recognition by industry to ensure that programs are meeting employer needs and to assist in placing graduates in jobs (CRD, 1991, p. 7).

The steps in the voluntary accreditation process include:

1. developing standards to use in program evaluation;
2. on-site evaluation of procedures and processes led by a team of professionals within the field to determine if standards are being met;
3. an accreditation decision coupled with formal recognition of a program (CRD, 1991).

The Georgia business education industry certification program incorporated all of the aforementioned ideas and regulations in the development and implementation of their industry-based skill standards.

Georgia's Business Education Industry Standards

In an effort to establish programs of excellence in business education, the Society for Human Resource Management (SHRM), Greater Atlanta Chapter, in conjunction with the Georgia State Department of Education (DOE), established Business Education Industry Certification Standards for use at the secondary level.

The goal of these standards is "to promote high quality instruction in business education" (SHRM, 1991, p. 1). The stated purpose of these standards is to provide competent entry-level employees to business and industry. Theoretically, therefore, students will benefit from an industry certification program as they become entry-level competent and more employable, ultimately leading to a higher quality workforce. However, these standards were developed with little input from business and industry personnel or educators, two of the three groups most affected by the standards.

SHRM and the State DOE developed the initial standards through the following process: (1) the State DOE made available other standards, such as the home economics and marketing standards, that were currently in place; (2) the SHRM committee took the generic standards from those made available and made them a part of the business education standards; (3) the SHRM committee designated specific business education standards (i.e., hardware and software); and (4) the SHRM committee consulted with the State DOE (i.e., Business Education State Supervisor) on topics that included business education clubs.

The 1991-1992 school year was the pilot year for the standards. Four schools successfully completed the business education in-

dustry certification process. At the end of the first academic year of certification, the industry-certified teachers at these four schools were asked to critique the standards for possible revision. After review, some hardware and software requirements were revised. It was also recommended that the standards would be reviewed and updated annually by a SHRM committee.

Significance of the Study

Current business education industry certification standards have been implemented with little or no feedback from business and industry or the education community. This is a critical issue as this certification process is an attempt to meet the needs of the business community in preparing students at the secondary level for entry-level employment.

Vocational education program standards have been evolving since approximately 1973 and are typically produced due to:

--an increased demand for accountability in education.
--the need to justify the existence of certain programs in a time of declining enrollments.
--modifications in state certification requirements.
--the perceived inadequacy of current accreditation guide lines and instruments (Wentling, 1985).

Owens and Crohn (1983) state that "there is no generally accepted set of criteria for judging excellent vocational education programs and their outcomes" (p. 1). This research provides a rating of one such set of criteria for business education programs. Current industry standards set for vocational education programs and their outcomes are, at the present, not rated. A broader local and statewide awareness for business education teachers and business personnel of industry certification and its components in the secondary business education program was also produced as a result of this research. The results of this research may also provide useful information regarding the process of developing standards for any vocational program area.

Purpose of the Study and Research Objectives

The purpose of this study was to examine the similarities and/or differences between the ratings of the Georgia Business Education Industry Certification Standards by Georgia industry certified business education teacher, non-industry certified business education teachers, and Georgia business and industry personnel.

Based on this purpose, the problem with which this study dealt was: What are the ratings of current Georgia Business Education Industry Certification Standards by Georgia business educators and business and industry personnel. The study had the following objectives:

1. Determine the difference between the ratings of Georgia industry certified business education teachers and Georgia non-industry certified business education teachers on the Georgia Business Education Industry Certification Standards.
2. Determine the difference between the ratings of Georgia industry certified business education teachers and business and industry personnel on the Georgia Business Education Industry Certification Standards.
3. Determine the difference between the ratings of Georgia non-industry certified business education teachers and business and industry personnel on the Georgia Business Education Industry Certification Standards.

Methodology

The population of this study was industry certified business education teachers, non-industry certified business education teachers, and business and industry personnel in Georgia. Based on the Krejcie and Morgan (1970) sampling design and given the unequal size of the three groups, all the industry certified business education teachers (n = 49) were surveyed, 188 of the non-industry certified business education teachers were surveyed, and 378 of those business and industry personnel belonging to the Georgia Chambers of Commerce were surveyed. Systematic sampling was used to determine the sample of non-industry certified business teachers and business and industry personnel.

Based on a previous, similar research study, the 80 industry certification standards themselves served as the survey questions. These 80 standards were categorized under these headings: Instruction, Equipment/Facilities, Learning Resources, Instructional Staff, Youth Organization (FBLA), Administrative Services, Advisory Committee, and Student Career Related Services.

A four-point Likert scale was used with the following components: Must Have (MH) is the rating that the standard is a critical and necessary one to include; Possible (P) is the rating that the standard may possibly be included, but it is not absolutely necessary; Definitely Not (DN) is the rating that the standard need not be included; Unfamiliar (UNFAM), the respondent is not familiar with the topic and, therefore, cannot make a competent judgement.

A series of one-way Analyses of Variance (ANOVA) procedures were applied to each question in this study. The Tukey HSD (Honestly Significant Differences) method was utilized to compare the means of the groups to determine significant differences.

The following demographic data were also collected: type of certification or size of business; gender; type of degree; year of highest level degree completion; location of school or business; total number of years teaching or business experience; and present age.

Findings

The findings of the study are discussed in this section. This discussion begins with a description of the participants.

The final response rates for the three sub-groups are as follows: Industry Certified Business Education Teachers, 98%; Non-Industry Certified Business Education Teachers, 73%; and Business and Industry Personnel, 28%. These response rates were achieved after two follow-up efforts to the original mailing. The majority, 70%, of the respondents were female. In addition, 63.5% were between 41 and 60 years of age. The majority of the participants, 71.3%, also had from 11-30 years of experience.

Significant differences between the ratings of Georgia industry certified business education teachers, Georgia non-industry certified business education teachers, and Georgia business and industry personnel on the Georgia Business Education Industry Certification Standards are presented in Table 1. The post hoc comparisons are listed to demonstrate which group(s) rated each individual standard higher or lower than the other group(s).

Table 1
Analysis of Variance

Survey Section	Survey Question	Sum of Squares	df	Mean Square	F	Post Hoc Contrast
Instruction	1	4.84	2,271	2.42	5.94*	IC & BE > BI
	2	8.68	2,277	4.34	11.74*	IC & BE > BI
	3	34.85	2,275	17.43	24.72*	IC & BE > BI
	4	2.41	2,274	1.20	2.49	--
	5	8.92	2,261	4.46	10.30*	IC & BE > BI IC > BE
	6	25.01	2,275	12.51	42.78*	IC & BE > BI
	7	5.42	2,271	2.71	4.81*	IC > BI
	8	13.43	2,274	6.72	13.60*	IC & BE > BI
	9	11.58	2,273	5.79	17.30*	IC & BE > BI
	10	17.64	2,375	8.82	23.01*	IC & BE > BI
	11	6.08	2,273	3.04	7.19*	IC > BI
	12	3.64	2,275	4.82	8.42*	IC & BE > BI
	13	3.40	2,274	1.70	4.66*	--
	14	3.63	2,274	1.82	4.06	--
	15	.79	2,272	.40	1.10	--
	16	5.21	2,272	2.60	7.12*	IC > BI & BE
	17	5.04	2,202	2.52	8.40*	IC & BE > BI
	18	.11	2,276	.06	.13	--
	19	.50	2,271	.25	.92	--
	20	1.27	2,276	.64	1.14	--
	21	6.29	2,276	3.15	8.91*	IC & BE> BI
	22	8.47	2,272	4.24	9.30*	IC > BI & BE
Equipment/ Facilities	23	26.16	2,274	13.08	25.08*	IC & BE > BI
	24	57.44	2,273	28.72	62.44*	IC & BE > BI
	25	5.67	2,275	2.83	6.28*	IC & BE > BI
	26	48.40	2,273	24.20	64.83*	IC & BE > BI
	27	21.75	2,275	10.88	30.69*	IC & BE > BI
	28	15.58	2,274	7.79	27.20*	IC & BE > BI
	29	15.85	2,274	7.93	26.76*	IC & BE > BI
	30	157.92	2,271	78.96	73.63*	IC & BE > BI
	31	11.25	2,278	5.62	28.56*	IC & BE > BI
	32	15.40	2,278	7.70	36.24*	IC & BE > BI
	33	14.54	2,276	7.27	24.06*	IC & BE > BI
	34	15.75	2,277	7.88	35.74*	IC & BE > BI
	35	25.65	2,277	12.82	46.06*	IC & BE > BI
	36	31.34	2,276	15.67	41.53*	IC & BE > BI
	37	2.84	2,276	1.42	6.65*	BE > BI
	38	2.55	2,274	1.27	3.47	--
	39	4.30	2,278	2.15	9.09*	IC & BE > BI
	40	3.16	2,274	1.58	4.47	IC > BI & BE

(table continued)

Survey Section	Survey Quest.	Sum of Squares	df	Mean Square	F	Post Hoc Contrast
	41	5.81	2,276	2.90	9.04*	IC & BE > BI
	42	17.72	2,275	7.36	13.99*	IC & BE > BI
	43	4.39	2,278	2.19	6.53*	IC > BI & BE
	44	6.16	2,278	3.08	8.40*	IC > BI & BE
Instructional	45	17.03	2,276	8.52	32.36*	IC & BE > BI
Staff	46	39.72	2,276	19.86	38.42*	IC & BE > BI IC > BE
	47	36.39	2,277	18.19	29.01*	IC & BE > BI IC > BE
	48	9.98	2,275	4.99	9.05*	IC & BE > BI
	49	6.98	2,268	3.49	5.98*	IC > BI & BE
FBLA	50	59.30	2,277	29.65	64.00*	IC & BE > BI IC > BE
	51	18.07	2,272	9.04	11.51*	IC & BE > BI
	52	47.87	2,273	23.94	35.17*	IC & BE > BI IC > BE
	53	40.29	2,274	20.15	32.37*	IC & BE > BI IC > BE
	54	42.87	2,273	21.43	33.69*	IC & BE > BI IC > BE
	55	42.36	2,274	21.18	30.92*	IC & BE > BI IC > BE
	56	32.04	2,274	16.02	27.50*	IC & BE > BI IC > BE
	57	20.84	2,274	10.42	18.41*	IC & BE > BI IC > BE
	58	5.04	2,272	2.52	4.24	--
	59	42.07	2,274	21.03	34.95*	IC & BE > BI IC > BE
Administrative	60	4.65	2,272	2.32	3.70	--
Services	61	12.61	2,274	6.31	12.99*	IC & BE > BI
	62	23.60	2,273	11.80	20.24*	IC & BE > BI
	63	40.02	2,274	20.01	47.07*	IC & BE > BI
	64	38.68	2,274	19.34	38.20*	IC & BE > BI
	65	7.89	2,275	3.95	18.14*	IC & BE > BI
	66	6.62	2,274	3.31	11.13*	IC & BE > BI
Advisory Committee	67	11.98	2,274	5.99	13.08*	IC & BE > BI IC > BE
	68	14.99	2,274	7.50	12.69*	IC & BE > BI IC > BE
	69	21.55	2,275	10.78	18.86*	IC & BE > BI IC > BE
	70	14.42	2,275	7.21	12.29*	IC & BE > BI
	71	10.03	2,273	5.03	7.75*	IC > BI & BE
	72	9.86	2,274	4.93	8.05*	IC > BI & BE
	73	12.40	2,276	6.20	10.88*	IC > BI & BE
	74	6.83	2,276	3.41	5.61*	IC > BI & BE
	75	4.39	2,270	2.20	4.45*	IC > BI & BE
Career	76	15.15	2,272	7.57	16.96*	IC & BE > BI
Related	77	2.22	2,275	1.11	2.01	--
Services	78	1.68	2,275	.84	2.72	--
	79	.017	2,275	.01	.03	--
	80	5.91	2,274	2.96	8.33*	IC > B I & BE

Note: IC = Industry Certified Business Education Teachers
BE = Non-industry Certified Business Education Teachers
BI = Business and Industry Personnel
-- = Not significant
* = p = < .01

Few non-significant differences were found throughout the analysis of the data. Most non-significant differences were found in the instruction and career related sections. Questions 14, 15, 18, 19, and 20 in the instruction section and questions 77-79 produced no significant differences. Question 14 dealt with a long-term group project to learn teamwork, and question 15 asked if spelling was a part of each business education course. Questions 18, 19, and 20 focused on career orientation issues such as entrepreneurship, values and ethics, and student interships. Questions 77, 78, and 79 addressed career guidance opportunities such as specific business education career guidance, visits to college or technical schools, and inviting guest speakers to each business course. Post hoc comparisons show a definite trend for educators rating the standards higher than business and industry personnel.

Most differences that occurred between industry certified business education teachers and non-industry certified business education teachers were in the areas of Future Business Leaders of America and advisory committee. The industry certified teachers rated several questions in these sections higher than non-industry certified teachers.

The one section in the survey that resulted in the least significant difference was the career-related services section. Two questions (number 76 and number 80) displayed a difference with business and industry personnel rating them lower than the industry certified business education teachers. Question 76 was concerned with making contact with eighth graders prior to ninth grade registration, and question 80 dealt with guest speakers being used in each business course. Question 76 was also rated higher by the non-industry certified business education teachers than business and industry personnel.

The major area of difference was found in equipment/facilities. There was a difference with every standard in this section, with both groups of educators rating standards higher than business and industry personnel.

A comment page was allotted as the last page of the survey to elicit specific suggestions about the standards. This was especially important as no prior feedback had been obtained from a broad base of those affected by the standards. A review of the comments yielded eight main categories. They are outlined and described in Table 2.

Table 2
Comment Categories, Descriptions and Number of Comments Provided by Participants

Comment Category	Description	Groups		
		IC	BE	BI
Creates Quality Business Education Program	Meeting these standards results in a quality, real world type of business education program secondary level (a must).	4	1	0
Too Strict Hardware & Software Requirements	The standards to set up hardware & software are too strict and are not flexible.	3	4	0
FLBA Guidelines Too Strict	Noting the number & percentages of students & teachers the must be involved in FBLA are too strict.	12	15	2
Numbers & Percentages of Students in Classroom Too Strict	The number of students & percentages of time required for students to be involved in computer classroom settings are too strict.	3	9	3
Numbers of Advisory Committee Members Too Strict	The number of members, restrictions on meeting times, who and in what area should those members be involved, and keeping records on advisory committees are too strict.	7	7	3
Teacher SDU & Summer Training Too Demanding	Staff development requirements & demand for teacher training are too strict.	3	6	1
Teacher Professional Organization Involvement Too Demanding	Teacher involvement in professional organizations is too demanding & questionably illegal.	1	3	3
Lack of Funds & Flexibility	The overall standards funding & curriculum are inflexible	6	7	6

Note: IC = Industry Certified Business Education Teacher; BE = Non-industry Certified Business Education Teacher; BI = Business and Industry Personnel

All three groups commented on the lack of funds and lack of flexibility in the standards. Also FBLA restrictions were seen as too stringent by all groups due to the number of students and teacher who are required to belong to or work with FBLA clubs. Only the educators see the possibility of these standards resulting in a quality business education program at the secondary level. Those disagreeing with the use of standards simply stated that they were too regimented and the lack of funding would produce problems.

Conclusions and Implications

The findings were consistent with the literature reviewed. Douglass (1988) found that the more involved a group is with the implementation of standards, the more positive an attitude toward standards will occur. This supports the findings of this study in that the industry certified business education teachers have been more involved with standards as they have completed a one-week training session and are currently working hand-in-hand with the standards.

Also as noted in the literature, there were opposing views on the setting of standards. Two of the most common complaints were inflexibility and the high cost of implementation. Results of this study support past findings as these same concerns were expressed in the comments section of the survey. Accreditation is "often times seen as both developmental and regulatory" (Wentling, 1985, p. 7). However, as Bonfadini (1982) found in his study, it is necessary to continue obtaining input from business, industry, parents, and students to keep the standards up to date.

It was also noted several times in the respondents' comments that the schools in Georgia differ widely from urban to rural communities, and rural schools may have difficulty or may not necessarily need, because of industry variations, to meet the business education industry certification standards. It was best summarized by Kane and Chase (1983) that "the concept of standard implies some commonality or uniformity, but finding uniformity in diversity is not easy" (p. 6). If the standards are too strict and inflexible, the goodness of the diversity is lost.

Historically, business and industry personnel lament the quality of high school graduates entering the workforce. However, they did not feel the need to respond at a high level to this survey. The low response rate may have been due to the lack of publicity of these standards and the business and industry personnel's general lack of knowledge of these standards.

In light of the issues raised in this study, the question arises, 'are standards an appropriate paradigm for program evaluation?' Because standards are set, does this automatically mean that students are entry-level competent employees? These are two concerns that have emerged from this study.

In addition, a critical missing link between educators and business and industry personnel surfaced. While educators responded well and supported many of the standards, business and industry personnel did neither. The 28% of the business and industry personnel who did respond had several negative comments about the standards and, overall, did not perceive them as important as the educators. It is interesting that the Georgia Business Education Industry Certification Standards were developed by business and industry people; however, they, at least in this study, do not view them as important steps in reaching the goal of producing entry-level competent employees.

Recommendations

Based on the data gathered and conclusions drawn, the following recommendations are made:

1. It would be beneficial for the business education division of the Georgia State Department of Education to examine this study and implement changes to the standards were necessary.

2. It would be beneficial for educators to have a voice in updating the standards along with the SHRM committee.

3. It would be useful and necessary to replicate this study as the standards and technology continue to change, obtaining a larger response from business and industry personnel.

4. The data collected from this study should be used in other states that are setting business education industry certification standards.

5. It would be beneficial to conduct qualitative research with students completing an industry certified business education program.

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Recognizing Errors

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Abstract

Students in business communications classes completed one of three forms of a series of questions to determine whether students could recognize errors in style or usage. The first group received all incorrect sentences, the second group received all correct sentences, and the third group received half incorrect and half correct. Significant differences were found between the all incorrect and all correct groups and between the all correct and mixed groups.

Background

Writers need to locate and correct errors in their documents. If a writer is unable to recognize errors--either in style or mechanics--the writer will not make needed revisions. On the other hand, writers who interpret correct writing as incorrect may make unnecessary revisions to the detriment of the document.

Purpose

The purpose of this study was to determine whether students could recognize errors in business writing.

Related Literature

Aldrich (1982) studied whether adult writers improved selected sentences in sample writing. The majority (61.2%) either failed to improve the writing by making changes, left it as written, or made changes that actually decreased the quality of writing. In addition, respondents to the survey often made caustic comments about the quality of the questions or samples included in the instrument. Aldrich noted, "Interestingly, most of these people were among those who did not improve the sentence" (p. 299).

Another issue related to correcting errors is the perceived seriousness of the error by the writer. Merrier and Duff (1990) studied the attitude of business persons to errors in various business documents. Although respondents in the study indicated more tolerance in errors for short-lived documents, the conclusion was that students ". . . should make every effort to be sure that every document they create--regardless of the medium used to transmit it--uses correct grammar, style, and word choice" (p. 124).

Therefore the question is raised about the ability and desire of writers to identify and correct any mistakes in writing. Without identifying errors, corrections cannot be made. Without motivation to achieve the highest level of writing, errors may be missed or ignored.

Anderson (1985) and Faigley and Miller (1982) reported that quality of writing in the workplace is perceived as poor by college-educated workers. Although these respondents in these studies indicated that good writers need to go beyond "the basics" to achieve good writing, they expressed concern for deficiencies in "grammar" and "mechanics" by business writers.

This increase in the concern for poor writing mechanics in the workplace is reflected in a study by Bennett and Olney (1986) who replicated a study conducted in 1970. The researchers determined current concerns and compared them with the results of the earlier study of what executives believed should be covered in business communication courses. In the 1970 study, 31 percent of the executives said grammar should have a strong emphasis in business communication classes. Sixteen years later, 83 percent indicated that grammar should have strong emphasis. Honl and Pagel (1992) also reported that business trainers rank English fundamentals (first) and writing principles (fifth) on a list of 22 competencies that should be included in the beginning business communications course.

Methodology

Students in three business communication classes completed one form (A, B, or C) of a document on which they were asked to identify whether sentences were correct, acceptable, or incorrect. The three forms of the test were (A) all 20 sentences incorrect, (B) all 20 sentences correct, and (C) 10 incorrect and 10 correct sentences.

The students were told to imagine that they had written a report or other document and that it was 4:50 p.m. on a Friday afternoon. The document needed to be in the mail before midnight. They were to read each of the sentences as if part of a total document. They were then to determine if the sentences were (a) acceptable in a pinch, (b) bad usage--never to be sent out over their names, or (c) correct. The test administrator did not give any indication that errors were present in any or all sentences. Students were allowed 10 minutes to complete the form.

Findings

Tables 1-3 present the raw data for the study. For Table 1, all answers were "b"; for Table 2, all "c"; and for Table 3, sentences marked with an * were "b" and with ** "c." Students who chose "a" for questions on all forms either believed that the sentence contained an error that they considered minor or they were not certain enough about it containing an error or being correct.

Students who completed Form A (all incorrect) had a mean score of 8.62, and students completing Form B (all correct) had a mean score of 6.64. This is significant at the .05 level (t value of 2.26). Students completing Form C (half correct and half incorrect) had a mean of 9.08. This is significant at the .05 level when compared to the mean of students completing Form B (all correct) but not significant when compared to the mean of students completing Form A (all incorrect).

Summary and Conclusions

When making the choice of "acceptable," "incorrect," or "correct" on each form, students were faced with the same decision for each sentence. Once the students determined they found an error, they had to choose between accepting the error or indicating they would not permit the error to stand. If the students considered the error minor, the choice would support Merrier and Duff's (1990) findings that many writers are willing to accept minor errors in some documents. If, on the other hand, the choice was made because they were not certain about whether the writing was correct or incorrect, the result would be the same--errors might be left in documents or unneeded corrections might be made that result in errors in the finished document.

The difference between the forms that contained either all incorrect or all correct and the mixed form suggests further studies need to be done with students in this area. First, do students locate the planted error or are they seeing errors not present? Second, do students anticipate that any exercise in a classroom should contain errors and thus indicate errors where none are present? Third, would the type of document or recipient cause students to accept or correct errors?

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Table 1
Answers on Form A--All Incorrect Sentences

Question	Answer	A(Acceptable) Occurrences No.	Pct.	B(Bad Form) Occurrences No.	Pct.	C(Correct) Occurrences No.	Pct.
1. The best in the industry.		11	36.7	11	36.7	8	26.7
2. Now is the time to meet with our clients and for discussing expanded coverage with them.		8	26.7	20	66.7	2	6.7
3. After Robert demonstrated the equipment and Charlene outlined the marketing plan, the committee endorsed it.		13	43.3	8	26.7	9	30.0
4. Everyone was asked to give their opinion.		13	43.3	8	26.7	9	30.0
5. The secretary, not the clerks, were responsible for ordering office supplies.		7	23.3	18	60.0	5	16.7
6. Enclosed in the package is the software and the documentation.		9	30.0	9	30.0	12	40.0
7. While driving to Reno, the car developed engine trouble.		8	26.7	11	36.7	11	36.7
8. Its a winning combination!		9	30.0	19	63.3	2	6.7
9. The students observed that oil was lighter than water.		5	16.7	7	23.3	18	60.0
10. The Board of Directors are meeting on Friday.		4	13.3	17	56.7	9	30.0
11. Please join Hyung, Ramesh, and I for a tour of the plant.		7	23.3	18	60.0	5	16.7
12. Please bring this package to the mail room.		8	26.7	10	33.3	12	40.0
13. This is man's work!		5	16.7	23	76.7	2	6.7
14. The applicant has experienced and an interst in computers.		9	30.0	8	26.7	13	43.3
15. The bottom line is that we must play it close to the belt to turn a profit.		10	33.3	18	60.0	2	6.7
16. You are authorized to immediately begin your investigation.		9	30.0	7	23.3	14	46.7
17. The report was mailed to Lars and myself.		7	23.3	12	40.0	11	36.7
18. If I was the negotiator, I'd ask that dental coverage be included in the benefit package.		10	33.3	11	36.7	9	30.0
19. The winner will choose between a TV, a CD player, and a VCR.		7	23.3	10	33.3	13	43.3
20. CHIP is currently offering some real good buys on microcomputers.		7	23.3	17	56.7	6	20.0

Table 2
Answers on Form B--All Correct Sentences

Question	Answer	A(Acceptable) Occurrences No.	Pct.	B(Bad Form) Occurrences No.	Pct.	C(Correct) Occurrences No.	Pct.
1. The company is the best in the industry.		11	44.0	4	16.0	10	40.0
2. Now is the time to meet with our clients and to discuss expanded coverage with them.		8	32.0	12	48.0	5	20.0
3. After Robert demonstrated the equipment and Charlene outlined the marketing plan, the committee endorsed the equipment and the marketing plan.		6	24.0	16	64.0	3	12.0
4. Everyone was asked to give his or her opinion.		6	24.0	7	28.0	12	48.0
5. The secretary, not the clerks, was responsible for ordering office supplies.		7	28.0	10	40.0	8	32.0
6. Enclosed in the package are the software and the documentation.		10	40.0	10	40.0	5	20.0
7. While I was driving to Reno, my car developed engine trouble.		1	4.0	13	52.0	11	44.0
8. It's a winning combination!		8	32.0	7	28.0	10	40.0
9. The students observed that oil is lighter than water.		3	12.0	5	20.0	17	68.0
10. The Board of Directors is meeting on Friday.		7	28.0	6	24.0	12	48.0
11. Please join Hyung, Ramesh, and me for a tour of the plant.		6	24.0	9	36.0	10	40.0
12. Please take this package to the mail room.		8	32.0	4	16.0	13	52.0
13. This is everyone's work!		5	20.0	18	72.0	2	8.0
14. The applicant has experience with and an interest in computers.		9	36.0	12	48.0	4	16.0
15. The goal is that we must economize to make a profit.		10	40.0	12	48.0	3	12.0
16. You are authorized to begin your investigation immediately.		4	16.0	4	16.0	17	68.0
17. The report was mailed to Lars and me.		6	24.0	16	64.0	3	12.0
18. If I were the negotiator, I'd ask that dental coverage be included in the benefit package.		10	40.0	7	28.0	8	32.0
19. The winner will choose among a TV, a CD player, and a VCR.		5	20.0	14	56.0	6	24.0
20. CHIP is currently offering good buys on microcomputers.		9	36.0	9	36.0	7	28.0

Table 3
Answers on Form C--Mix. Incorrect Correct Sentences

Question	Answer	A(Acceptable) Occurrences No.	Pct.	B(Bad Form) Occurrences No.	Pct.	C(Correct) Occurrences No.	Pct.
*1. The best in the industry.		10	45.5	9	40.9	3	13.6
*2. Now is the time to meet with our clients and for discussing expanded coverage with them.		2	9.1	18	81.8	2	9.1
*3. After Robert demonstrated the equipment and Charlene outlined the marketing plan, the committee endorsed it.		8	36.4	7	31.8	7	31.8
*4. Everyone was asked to give their opinion.		2	9.1	3	13.6	17	77.3
**5. The secretary, not the clerks, was responsible for ordering office supplies.		5	22.7	7	31.8	10	45.5
**6. Enclosed in the package are the software and the documentation.		5	22.7	10	45.5	7	31.8
**7. While I was driving to Reno, my car developed engine trouble.		4	18.2	6	27.3	12	54.5
**8. It's a winning combination!		11	50.0	1	4.5	10	45.5
*9. The students observed that oil was lighter than water.		3	13.6	7	31.8	12	54.5
**10. The Board of Directors is meeting on Friday.		1	4.5	9	40.9	12	54.5
**11. Please join Hyung, Ramesh, and me for a tour of the plant.		4	18.2	12	54.5	6	27.3
*12. Please bring this package to the mail room.		2	9.1	6	27.3	14	63.6
*13. This is man's work!		3	13.6	18	81.8	1	4.5
**14. The applicant has experience with and an interest in computers.		8	36.4	10	45.5	4	18.2
*15. The bottom line is that we must play it close to the belt to turn a profit.		9	40.9	7	31.8	6	27.3
**16. You are authorized to begin your investigation immediately.		6	27.3	0	—	16	72.7
*17. The report was mailed to Lars and myself.		5	22.7	9	40.9	8	36.4
**18. If I were the negotiator, I'd ask that dental coverage be included in the benefit package.		4	18.2	4	18.2	14	63.6
**19. The winner will choose among a TV, a CD player, and a VCR.		4	18.2	8	36.4	10	45.5
*20. CHIP is currently offering some real good buys on microcomputers.		6	27.3	12	54.5	4	18.2

The Relationship Between Work Group Organization and Job Dimensions of Administrative Support Jobs and the Job Satisfaction of Administrative Support Workers

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Abstract

Technology has transformed the office, changing the nature of the work and the work group organization. The purpose of this study was to investigate administrative support jobs and the job satisfaction of administrative support workers with various aspects of those jobs. Members of the Minnesota-North Dakota Chapter of Professional Secretaries International completed the Job Diagnostic Survey, the Minnesota Satisfaction Questionnaire, and the Administrative Support Information Questionnaire. Preliminary results indicate that the type of work group organization and participation in management teams impact the nature of the job and the satisfaction of administrative support employees.

Introduction

Technology has had a major impact upon the operations of the business office. Equipment has changed. More importantly, the way in which tasks are completed, the workflow, the nature of the work, and even the work group organization have changed.

Fruehling and Weaver (1987) and Wagoner and Ruprecht (1987) have described this process of change as an evolution from the traditional office through the transitional office to what is often called the electronic office. There is evidence that many offices have almost completed this movement through the transitional stage and now operate as fully electronic offices. Some offices, of course, remain in the transitional stage, while others still might be considered traditional in nature.

As technology has evolved, administrative support jobs, particularly those at the middle to upper levels, have increased in responsibility, autonomy, and the variety of tasks completed. Goodrich (1989) found that support workers are processing information to be used for decision making by their superiors, and that the support workers' responsibilities include both creative work and routine tasks. Hosler (1988) has suggested that secretaries in the electronic office are expected to gather information, select relevant data, incorporate graphics, and present final reports to management. Fruehling and Weaver (1987) have indicated office support workers are becoming more involved with decision making, analyzing, and presenting information in addition to the traditional tasks of gathering and processing information. Gittler (1992) interviewed secretaries and found that they enjoy the variety of work, which has become complex and diversified.

As organizational hierarchies have flattened, secretaries with lower salaries have been acquiring the responsibilities of middle management. Mennen (1991) has indicated that secretaries have been given many of the responsibilities of middle management. Stone (1994) has stated that once office technology has been mastered by administrative support staff, they have time to take on administrative and supervisory responsibilities, now available in the flatter, downsized organizations. In these situations, support staff members are considered valuable team members. This phenomenon has provided opportunities for administrative support workers to demonstrate their abilities. While responsibilities have increased, salaries have lagged behind. Mennen (1991) indicated that rewards have not followed accomplishments as administrative support workers took on additional responsibilities.

The way in which the office is organized has changed as well. Householder (1992) has said that many executives share secretaries. In fact, one secretary may support several administrators. This new organization has brought both opportunities and challenges. Work may become more stressful as one support person tries to meet the demands of multiple administrators, especially when meeting deadlines. On the positive side, more opportunities are available to show potential. Some organizations are making an effort to provide improved career options. According to Stone (1994), Burroughs Wellcome, a pharmaceutical manufacturer, has developed a set of career paths that provide for advancement within the secretarial field, as well as opportunities to move into a supervisory track. Gooden (1994) reported that administrative support staff also perceive the need for college education more than they did 15 years ago.

Job redesign and job satisfaction theory suggest that jobs with variety, responsibility, and autonomy tend to be more satisfying to workers. According to Hackman and Oldham (1980), in order for a job to be enriched and provide work motivation, the job needs to provide work outcomes that are intrinsically meaningful, feedback from the job itself or from supervisors, and the worker needs to feel personally responsible for an identifi-

able and meaningful piece of work. Workers will be motivated by an enriched job if they have a desire for growth and possess the abilities to carry out the duties of the job. Thus, if administrative support jobs are increasing in autonomy, responsibility, and task variety, they should enhance job satisfaction.

How well do the job dimensions of today's administrative support jobs provide intrinsic satisfaction for the job itself? For example, do added responsibilities and variety of tasks increase job satisfaction for today's administrative support workers? Or, are workers dissatisfied because they experience work overload? Do extrinsic job characteristics such as wages and career development opportunities meet the needs of today's administrative support workers, particularly if the jobs include increased responsibilities and a variety of task requirements?

While several recent studies (Everett, 1988; Stitt, 1988; Rickman & Behymer, 1989; Moon, 1983) have researched the technology and the skills needed for the electronic office, research on the impact of the information age upon the satisfaction of job dimensions of the electronic office is limited. Studies on job dimensions including Kutie (1978) and Regan (1984) were conducted during the late 1970s and early 1980s when separating word processing from administrative duties was emphasized. However, research in the area of job dimensions and job satisfaction is important once again as the electronic office further evolves changing tasks, responsibilities and the very structure of administrative support jobs.

This evolving technology coupled with an economy searching to be competitive in the world market have set the stage for remarkable changes to occur in the office. Specifically, how are jobs at the upper administrative support levels changing, and are workers satisfied with these changes?

Purpose of the Study

The purpose of the study was to investigate administrative support job characteristics and job satisfaction of administrative support workers. From this study, results can be used by employers to better understand how the characteristics of the job meet the needs of support staff. Educators may be more aware of the job characteristics and work group organization that are required in administrative support jobs, as well as the personal and technical skills necessary for administrative support workers as they update curricula and programs.

Statement of the Problem

This study investigated administrative support job characteristics and the satisfaction of administrative support workers with those job characteristics. The specific questions that the study sought to answer were:

1. As measured by the Job Diagnostic Survey (JDS), are there significant differences in administrative support jobs when grouped by the following selected job-related variables: job classification, geographical location, size of organization, level of technology, type of work group organization, or participation by administrative support workers in management teams?

2. As measured by the Minnesota Satisfaction Questionnaire (MSQ), are there significant differences among the job satisfaction of administrative support workers when grouped on the basis of (a) such job-related variables as job classification, geographical location, size of organization, level of technology, type of work group organization, or participation in management teams; and (b) such personal demographic variables as age, amount of education, length of time on the job, length of time in the occupation, or participation in career development activities?

3. Is there a significant relationship between the characteristics of a job, as measured by the Job Diagnostic Survey (JDS), and job satisfaction, as measured by the Minnesota Satisfaction Questionnaire (MSQ)?

Procedures and Data Collection

The Minnesota-North Dakota Division of Professional Secretaries International (PSI) participated in the study. A stratified random sample was selected from the population of MN-ND PSI members. A sample of 254 was selected from the total population of 606 active PSI members.

Each PSI administrative support worker selected for the study was mailed the following packet of information: a cover letter which explained the purpose of the study and included instructions on the procedure for completing the questionnaires, a letter of support from the MN-ND PSI Division President, an Administrative Support Information Questionnaire, the Job Diagnostic Survey (JDS), the Minnesota Satisfaction Questionnaire (MSQ), a post card (used for follow-up purposes and for a drawing), and a postage-paid return envelope. All post cards which were returned with the completed questionnaires were entered in a drawing for a $50 cashier's check as an added incentive to return the set of questionnaires.

The Administrative Support Information Questionnaire was developed specifically for this study. It requested information on job-related variables, such as size of organization, level of office technology, participation in management teams, and work group organization structure. Information on personal characteristics, including CPS certification and participation in career development activities, was also requested. A pilot study, involving members of PSI who were not selected for the survey, and ad-

ministrative support sta from the University of Minnesota, was conducted on the quest nnaire being developed to determine clarity and appropriateness of the instrument in requesting descriptive data.

The Job Diagnostic Survey (JDS), developed by Hackman and Oldham (1980), was used to measure job characteristics such as variety, autonomy, and significance of the job, information about feedback from the job and from supervisors, motivating potential of the job, internal work motivation, growth need strength, general job satisfaction, and specific job satisfaction dimensions including job security, pay, social, supervisory, and growth satisfaction.

The Minnesota Satisfaction Questionnaire (MSQ), developed by Weiss, Dawis, England, and Lofquist (1967), was used to measure general job satisfaction and 20 job satisfaction dimensions: ability utilization, achievement, activity, advancement, authority, company policies and practices, compensation, co-workers, creativity, independence, moral values, recognition, responsibility, security, social service, social status, supervision--human relations, supervision--technical, variety, and working conditions.

A total of 254 sets of questionnaires were sent out. Two follow-ups were conducted. A total of 186 (73%) sets of questionnaires were completed and returned. Six respondents were determined not to be administrative support workers and one worked outside the specified geographic location. Of those sets of questionnaires that were completed and returned, 179 or 70.5% were useable.

Descriptive statistics, T-tests and one-way analysis of variance were compiled using SPSS, v. 5. Multiple regression was used to determine possible relationships between job characteristics and job satisfaction. These analyses will be made available during the presentation at the conference.

Findings

The demographic characteristics of the administrative support workers is presented in Table 1. All of the respondents were female. The respondents ranged in age from 21-69 with a mean age of 44. The number of years of school completed ranged from 12 to 18 with a mean of 13.59 years. While a majority of 51.4 percent of the respondents indicated they had been working on their current job for five years or less, almost 60 percent of the administrative support workers had been in the occupation for more than 15 years. Approximately one-third of the respondents hold the distinction of being a Certified Public Secretary (CPS).

Table 1
Demographic Characteristics of Administrative Support Employees (N = 179)

Demographic Characteristics	Frequency	Percent
Age		
20-29	11	6.1
30-39	47	26.3
40-49	64	35.8
50-59	45	25.1
60-69	9	5.0
Missing Data	3	1.7
Years of Education		
12 Years	62	34.6
13 Years	38	21.2
14 Years	34	19.0
15 Years	12	6.7
16 or More Years	33	18.4
Length of Time on Current Job		
0-5 Years	92	51.4
6-10 Years	42	23.5
11-15 Years	28	15.6
16-20 Years	10	5.6
Over 20 Years	7	3.9
Length of Time in Current Occupation		
1-5 Years	15	8.4
6-10 Years	26	14.5
11-15 Years	30	16.8
16-20 Years	41	22.9
21-25 Years	35	19.6
26-30 Years	15	8.4
Over 30 Years	15	8.4
Missing Data	2	1.1
CPS Certification		
Certified	60	33.5
Non-certified	119	66.5

The job-related variables are described in Table 2. The respondents were almost equally divided between middle- and upper-level employees. Middle-level employees consisted of secretaries and legal secretaries while upper-level employees included administrative assistants, executive secretaries, and office managers. Job titles were provided by respondents, which broadly fell into the five classifications described above. Over two-thirds of the respondents worked in the Twin City metro area. The regional centers consisted of Duluth, Rochester, and St. Cloud, MN, and Fargo, ND.

Table 2
Job-Related Variables of Administrative Support Employees
(N = 179)

Job-Related Variables	Frequency	Percent
Job Classification		
Middle-Level Employees	84	46.9
Upper-Level Employees	91	50.8
Missing Data	4	2.3
Geographic Location		
Twin City Metro Area	121	67.6
Regional Centers	34	19.0
Greater Minnesota/North Dakota	24	13.4
Size of Organization		
1-100 Employees	43	24.0
101-999 Employees	57	31.9
Over 1000 Employees	79	44.1
Administrative Support Employees in the Organization		
1-5 Employees	29	16.2
6-10 Employees	19	10.6
11-25 Employees	15	8.4
26-50 Employees	22	12.3
51-200 Employees	22	12.3
201-500 Employees	22	12.3
Over 500 Employees	44	24.6
Missing Data	6	3.4
Administrative Support Employees in the Department		
1-5 Employees	134	74.9
6-10 Employees	19	10.6
11-25 Employees	17	9.5
Over 25 Employees	9	5.0

More respondents worked in organizations with over 1000 employees than either of the other two groups, reflecting the larger organizations located in the Twin City metro area. While the number of administrative support employees in the organization was somewhat evenly distributed, an overwhelming 74.9 percent of the respondents worked in departments of 1-5 employees.

Information on work group organization is provided in Table 3. The most common type of work group organization (44.7%) was that of one administrative support worker and a group of administrators. Approximately two-thirds (66.5%) of the respondents worked for more than one administrator. One administrative support worker supports an average of 4.9 administrators. The ratio is smaller in the group of multiple support workers and multiple administrators with an average of 6.8 support personnel and 12.9 administrators. Approximately the reverse was found in the third group with an average of 5.1 support employees supporting one administrator. However, only 12 (6.7%) of the respondents reported working in this type of work group. Approximately one-quarter (26.3%) of the respondents work in a group of one support worker and one administrator.

Table 3
Type of Work Group Organization
(N=179)

Work Groups	Frequency	Percent
One Admin. Support Worker & One Administrator	47	26.3
One Admin. Support Worker & A Group of Administrators	80	44.7
A Group of Admin. Support Workers & One Administrator	12	6.7
A Group of Admin. Support Workers & A Group of Administrators	39	21.8
Missing Data	1	.6

Size of Work Groups

Work Groups	Range	Avg.
One Admin. Support Worker &	N/A	1.0
One Administrator	N/A	1.0
One Admin. Support Worker &	N/A	1.0
A Group of Administrators	2-32	4.9* **
A Group of Admin. Support Workers &	2-12	5.1*
One Administrator	N/A	1.0
A Group of Admin. Support Workers &	2-30	6.8*
A Group of Administrators	2-50	12.9*

*Missing Data = 2
**Includes an outlier of 32
(Range = 2-14 with an outlier of 32)
(Avg. = 4.6 without the outlier)

Almost half (45.3%) of the respondents indicated that they had participated in a management team, as can be seen in Table 4. Support staff participated in both short-term and long-term projects. A total of 69.1% (56) of those who participated in a management team shared in the composition of project reports and 63% (51) researched background information. Over half of those who participated in management teams provided some participation in the decision-making process, while only 22.2% did so extensively.

Table 4
Management Teams

	Frequency	Percent
Management Team Participation (N = 179)		
Participant	81	45.3
Non-participant	88	49.2
Missing data	10	5.6
Type of Management Team Participation (N = 81)		
Teams for short-term projects	60	74.1
Teams for long-term projects	37	45.7
Teams for long-term on-going projects	52	64.2
Other	6	7.4
Responsibilities Shared by Participants (N = 81)		
Took minutes or notes	53	65.4
Keyed information prepared by others	51	63.0
Shared in the composition of project reports	56	69.1
Researched background information	51	63.0
Provided limited participation in decision-making process	41	50.6
Provided some participation in decision-making process	43	53.1
Provided extensive participation in decision-making process	18	22.2
Other	4	4.9

Descriptive statistics for the Job Diagnostic Survey (JDS) are shown in Table 5. On a scale of from 1-7 with 7 being the high score, the mean scores for the respondents averaged above 5, or relatively high, on all scales except Feedback from Agents, feedback received from supervisors or co-workers; Pay Satisfaction, pay and other compensation; and Job Choice GNS, preferences on job choices relating to the preference to growth and challenge on the job. Of the seven core job dimensions (skill variety, task identity, task significance, autonomy, feedback from agents, and dealing with others), Dealing with Others, how closely the employee works with other people, was the score with the highest mean (5.81). Feedback from Agents was the lowest mean score (4.85). Of the three critical psychological states (Experienced Meaningfulness, Experienced Responsibility, and Knowledge of Results), the highest mean score was Experienced Responsibility (5.85), the degree to which the employee feels personally accountable and responsible for the work she completes. Respondents were most satisfied with Social Satisfaction (co-workers) and least satisfied with Pay Satisfaction.

The descriptive statistics for the Minnesota Satisfaction Questionnaire are reported in Table 6. The administrative support workers were most satisfied with Moral Values, doing things that do not go against one's conscience. Other high scoring means included Social Service (20.42), the chance to do things for other people; Achievement (20.04), the feeling of accomplishment from the job; and Activity (20.02), keeping busy. The respondents scored the lowest on Advancement (14.16), the chance for advancement on this job.

Table 5
Means and Standard Deviations of Administrative Support Employees' Scores on 21 Items of the Job Diagnostic Survey (JDS) (N = 179)

Scale Items	Mean	S.D.
Skill variety	5.67	.89
Task identity	5.27	1.18
Task significance	5.73	1.05
Autonomy	5.53	1.04
Feedback from job	5.10	1.09
Feedback from agents	4.85	1.52
Dealing with others	5.81	.94
MPS	164.23	64.80
Experienced meaningfulness	5.44	.98
Experienced responsibility	5.85	.68
Knowledge of results	5.24	.90
General satisfaction	5.15	.99
Internal motivation	5.75	.69
Growth satisfaction	5.30	1.14
Job security	5.24	1.49
Pay satisfaction	4.89	1.50
Social satisfaction	5.59	.95
Supervisory satisfaction	5.42	1.36
Would like GNS	6.18	.85
Job choice GNS	4.19	.64
Total GNS	5.14	.74

Table 6
Means and Standard Deviation of Administrative Support Employees' Scores for the 21 Items Minnesota Satisfaction Questionnaire (N = 177)

Scale Items	Mean	S.D.
Ability Utilization	19.12	4.09
Achievement	20.04	3.13
Activity	20.02	3.45
Advancement	14.16	4.56
Authority	16.84	3.25
Company Policies and Practices	16.60	4.55
Compensation	16.37	4.75
Co-workers	18.10	3.75
Creativity	18.96	3.41
Independence	19.33	3.16
Moral Values	21.48	2.76
Recognition	17.66	4.75
Responsibility	18.82	2.88
Security	18.55	3.90
Social Service	20.42	3.03
Social Status	16.88	3.16
Supervision--Human Relations	17.78	4.87
Supervision--Technical	18.27	4.09
Variety	19.23	3.26
Working Conditions	19.16	4.29
General Satisfaction	73.79	10.53

In summary, the results from this study would suggest that work group organization tends to be structured with one administrative support person working for multiple administrators. Approximately half of the respondents perceived that they were a part of the management team. Of those who participated in management teams, over half of them were included in long-term on-going projects and were composing reports, researching information, and actively involved in the decision-making process. One could conclude that administrative support positions are becoming more complex with support staff taking on more responsibility.

The results from the Job Diagnostic Survey indicates a relatively high level of the seven core job dimensions, suggesting that the administrative support jobs studied were relatively high in job enriching characteristics. The core dimension with the highest mean score, Dealing with Others shows that support staff often work with others. The job dimension with the lowest score, Feedback from Agents, suggests that support staff tend to work independently.

Respondents tended to be most satisfied with the intrinsic characteristics of the job including not going against one's conscience, working with other people, accomplishment from the job, and being able to keep busy. They were least satisfied with pay and advancement.

The results of the JDS and MSQ would suggest that the administrative support jobs are enriching and that the support staff are pleased with the intrinsic aspects of the job. The frustration with pay and with opportunities for advancement are job satisfaction dimensions with which administrative support staff continue to be dissatisfied.

Analyses to answer the problem statements will be reported during the presentation at the conference. Preliminary data have provided some indication that work group organization and participation in management teams do impact the administrative support job and the satisfaction of administrative support workers. However, at the time this report was written, necessary additional analyses had not yet been completed. Conclusions and recommendations will also be shared during the conference presentation.

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School to Work Preparation of Urban Youth: Perceptions of Secondary Students Enrolled in Business Education Courses in Urban School Settings

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Abstract

Demographic projections indicate that employers will depend heavily on a workforce drawn from urban communities in the next 20 years (Lytle, 1992). The role of business educators in addressing such projections is to ensure that business courses are providing valuable experiences for urban students. The perceptions of students enrolled in business courses were examined to explore the viability of business education in an urban school setting. Findings suggest that students are generally positive about business courses and form perceptions toward business courses based on two factors--personal relevance and educational value of the courses. The grade level of student participants and the educational level of their mothers were significant variables in explaining student perceptions toward the second factor.

Introduction

Youth in urban school districts are a segment of our population that have experienced the most employment difficulties. Urban youth are often characterized as potential high school dropouts or non-college bound. High unemployment, irregular employment, or part-time employment offering no job security or benefits are additional descriptors of youth in urban school districts (Oakes, 1987; Rosenbaum, 1989). School-to-work preparation must be futuristic, meaning that students must be prepared for success *and* progress in whatever post-graduation choice they make--more education as further preparation for the workplace or immediate entrance into today's demanding workplace. The job outlook for urban youth will continue to be limited unless educators make greater efforts to help urban students obtain a solid academic foundation that will prepare them for employment as well as for higher levels of education.

Approaches for Improving School-to-Work Preparation of Urban Youth

The solution to a problem is only as good as the information used to define the problem. According to Obiakor (1992), the information gained relative to-the problems of urban youth (shared through research studies) has often blamed families and children for the children's poor progress in school. Information obtained over the last decade has not always been positive, but positive approaches to decrease dropout rates, improve students' performance, and prepare students for employment are a result of this information. One such approach is seen in the rapid growth of career preparation models such as career academies.

Early career academies were found in urban school districts and were designed to serve at-risk students, but have since attracted a broader cross-section of students interested in careers (Burnett, 1992). According to Kazis (1993), career academies are now highly regarded as dropout prevention programs as well as college preparatory programs. The success of early career academies suggests that ways to appropriately address the difficulties experienced by urban youth were found.

According to Dayton, Raby, Stern, and Weisberg (1992), when today's academy model is implemented properly, increases in academic achievement and decreases in dropout rates are seen. Students develop clearer goals, stronger academic and work-related skills, become employed in the fields in which they trained, and the majority continue in some form of post-secondary education. For example, a survey of California's academy graduates found that 94% were working in fields related to their high school training, going to school, or doing both.

New York City's career magnet high schools also combine traditional college preparation with career preparation. These schools purposely select half of their students and the other half is randomly selected. Crain, Heebner, and Si (1992) stated that career magnets attract potential dropouts to high school and expose them to a more demanding curriculum. "It seems that when career magnets work, it is because of their career focus. The programs that produce the most positive student outcomes are the ones that take their career commitment most seriously" (p. 3). In their study, students from an urban school system whose records would not have been good enough to gain admission to a selective school made substantial progress, a factor in support of the power of positive expectations.

Other career preparation models that have had varying degrees of success include career exploration, compacts, school-based enterprises, co-op education, youth apprenticeship, and youth service and service learning. In general, programs designed to strengthen the connection between school and work are usually either those focusing on curricula approaches in the classroom or those focusing on work outside of the classroom (Kazis, 1993). Information that shows the effects of completing business courses, the impact of business courses on retention and employment, and the perceived value of business courses is needed to assist business educators in exploring new and multiple approaches for improving career pathways, performance, and employment readiness of urban youth (Scriven, 1991). While student needs should not be the single motivator for curriculum design, student perspectives cannot be ignored when seeking to improve or redesign programs and courses in urban school settings.

Research should be conducted to describe the characteristics of urban students enrolled in business courses and their perceptions toward these courses. Do urban students perceive participation in business courses as educationally valuable? Which students benefit the most? How should business courses be promoted to urban high school students? This study describes urban students' perceptions toward business courses.

Purpose and Objectives

Current literature suggests a need to increase urban students' educational and workplace potential through school reform measures. In response to the current era of school reform, the purpose of this study is to assist business educators in improving business education course offerings in urban secondary schools. The primary objective of the study was to investigate student perceptions toward business courses in which they were enrolled. Selected variables were examined to determine possible influences on student perceptions. Specific research objectives for this study included:

1. Describe characteristics of secondary students enrolled in business courses in urban school settings (e.g., reasons for enrolling in course, employment status, immediate plans upon graduation, career objectives).

2. Describe perceptions of urban students toward business courses.

3. Identify the underlying dimensions that comprise perceptions of secondary students enrolled in business courses in urban school settings.

4. Examine the influence of select variables on student perceptions including gender, grade level, career objective, and immediate plans upon graduation.

Methods and Procedures

The target population for this study included all secondary students enrolled in business courses in a large urban school district. A purposeful sampling of intact classes in four urban high schools was used in order to minimize disruption to students and ensure that a variety of courses were represented in the sample. This procedure generated a final sample that consisted of 167 students enrolled in a business education course. The data were collected in the Spring, 1994.

A two-part, self-report questionnaire was used to obtain information from students and to determine their perceptions regarding the business courses in which they were enrolled. The first part asked students to supply demographic and background information such as gender, grade level, reason for enrolling, and plans after graduation. The second part of the questionnaire used a Likert-type scale (4 = strongly agree, 3 = agree, 2 = disagree, 1 = strongly disagree) requiring responses to 20 different statements designed to determine student perceptions toward business courses.

Questionnaires were distributed to business teachers at the four schools identified as the sample for the study. The teachers were asked to administer the questionnaires during class time and return them by mail to the researcher. To eliminate any student fears related to teacher knowledge of the responses, students were provided an envelope in which to seal completed questionnaires.

Both descriptive and inferential statistics were used to analyze the data. Factor analysis identified latent dimensions underlying the 20 scale items that measured student perceptions. Analysis of variance (ANOVA) was employed to determine if there were significant differences between or among select demographic and background variables on identified dimensions of student perception. A .05 level of significance was established for all analytic procedures.

Findings

The first research objective of this study was to describe characteristics of students enrolled in business courses in urban school settings including reasons for enrolling, prior completion of other business courses, immediate plans upon graduation, and career objectives. These characteristics are discussed in the following paragraphs. Table 1 illustrates the corresponding descriptive data.

Reason for enrolling. When asked to identify the most important reason for enrolling in the business course, over 30% of the students indicated that they thought the course would help them get a good job after high school. The next most important reason identified by the students was that they thought the course

Table 1
Characteristics of Students Enrolled in Business Education Courses in an Urban School Setting (n = 167)

Characteristic	Pecent
Most important reason for enrolling in the current business course	
Thought it would help me get a good job after high school	31.4
Thought it would help me in college	22.9
Liked the teacher	1.3
Thought it would be easy to pass or get a good grade	2.0
Needed the credits and nothing else was available or appealing	6.5
Friend recommended it to me	0.7
Guidance counselor recommended it to me	3.9
Wanted to get out of school early by enrolling in a cooperative on-the-job training experience	5.2
Interested in the subject	12.4
Other	13.7
Prior completion of other business courses:	
Yes	16.0
No	69.9
Not sure	14.1
Involvement in a cooperative on-the-job training experience *(n = 55)*	
Yes	37.7
No	37.7
Not sure	24.6
Number of hours worked per week reported by students *(n = 55)*	
10 or less	21.2
11-20	44.2
21-30	15.4
31-40	15.4
Over 40	3.8
Job sources reported by students enrolled in business courses *(n = 55)*	
Business teacher	24.1
Friends or family	48.3
Newspaper	3.4
Other	24.1
Immediate plans upon graduation from high school:	
Work full-time	5.1
Attend a two-year college or vocational school	10.9
Attend a four-year college or university	57.1
Work full-time and attend school part-time	4.5
Military	5.1
Undecided	14.1
Other	3.2

(table continued)

Characteristic	Pecent
Where the most information about careers was obtained:	
Parents	22.9
Business teacher	15.9
Other teachers	10.2
Other adults	9.6
Friends	0.6
Guidance Counselor	5.1
School career center	7.0
Books	8.3
Magazines, newspapers, or television	13.4
Other	7.0
Career objective *(What job (occupational category) would you like to have 10 years from now?)*:	
Executive, administrative, managerial, administrative support, clerical, and computer	16.7
Health *(diagnosing, assessment, treating, technologists, technicians)*	21.8
Lawyers and judges	9.0
Technologists *(except health)*	7.7
Visual/performing arts	3.85
Teachers, libranans, and counselors	3.85
Specialty-Athlete	3.85
Professional specialty *(engineering)*	2.6
Social scientists and urban planners	2.6
Other	7.05
Undecided	21.2

Note: Totals may not equal 100% due to missing data or rounding error.

would help them in college. A significant number of students (12.4%) were enrolled in the business courses because they were interested in the subject. Only 3.9% of the students were enrolled in the courses based on a guidance counselor recommendation, and even fewer students (1.3%) were enrolled in the courses because they liked the teacher.

Prior completion of other business courses. Almost 70% of the students indicated that they had not completed other business courses prior to the one in which they were currently enrolled. Interestingly, over 14% of the students indicated that they were not sure if they had taken other business courses.

Involvement in cooperative on-the-job training experience. Only 33.5% of the students enrolled in the business courses were also employed. However, almost half (44.2%) of the employed students worked from 11 to 20 hours per week, and another 30.8% worked hours ranging from 21 to 40 per week. Over 48% of the employed students identified friends or family as their primary job sources, and 24.1% identified their business teachers as job sources. Another 24.1% of the students identified *other* sources such as self-inquiry. Of the employed students, 37.7% indicated involvement in a cooperative, on-the-job training experience, and an equal number indicated that they were not involved in such an experience. Almost 25% of the students were not sure if they were involved in a cooperative, on-the-job training experience.

Immediate plans upon graduation. Sixty-eight percent of the students identified some form of post-secondary education as their immediate plans upon graduation from high school. Over half of the students (57.1%) indicated that their immediate plans are to attend a four-year college or university and to major in areas such as law, medicine, journalism, nursing, computer science, and accounting. Another 10.9% have plans to attend a two-year college or vocational school to pursue further study in areas such as accounting, computer technology, and cosmetology. A considerable number of students (14.1%) were undecided about their immediate plans after graduation from high school. Only 4.5% of the students have plans to work full-time, and another 5.1% identified the armed forces as part of their immediate plans after graduation.

Career information source. The largest percentage of the students (22.9%) identified their parents as their primary source for career information. The business teacher was identified by the next largest group of students (15.9%) as their source of information about careers. A significant number of students (13.4%) acquire career information from magazines, newspapers, and television, and 29.8% of the students identified other teachers or adults as their sources of information about careers. It is interesting to note that other than friends (0.6%), guidance counselors were identified least often (5.1%) as a source of information about careers.

Career objective. Stuc its were asked, "What job would you like to have 10 years fro . now?" Their responses were recorded based on occupational categories identified in the *Occupational Outlook Handbook, 1992-1993 Edition* (see Table 1). Almost 17% of the students identified business-related occupations such as administrative support and computer fields. However, it is interesting to note that although the students were enrolled in business courses, the largest percentage (21.8%) indicated an interest in health-related occupations such as nursing. Another 21.2% of the students were undecided about the job they expect to have 10 years from now. Students expecting to have jobs in *other* areas identified occupational categories such as religion, communications, agriculture, mechanics, and the armed forces.

Student Perceptions Toward Business Courses

The second research objective of this investigation was to describe the perceptions of urban students about the business courses in which they were enrolled. Student perceptions were generally positive. Means scores for the 20 individual scale items ranged from a high mean of 3.35 to a low mean of 2.50 (4 = strongly agree; 1 = strongly disagree). The highest rated statement, *this business course prepares me for employment in business-related jobs*, suggests that students perceived the courses as worthwhile. However, the lowest mean score indicates that students agreed less frequently with the statement, *the business course teaches me math skills needed by workers in the business world*. Table 2 provides the means and standard deviation for each scale item used to assess student perceptions toward the business courses.

Factors Identified in Student Perceptions

The third research objective was to identify the underlying dimensions that comprise perceptions of secondary students enrolled in business courses in urban school settings. A pre-existing data structure was not assumed; therefore, an exploratory factor analysis with varimax rotation was selected to determine latent dimensions represented among the 20 scale items. Used for the purpose of parsimony, factor analysis can provide a simpler explanation and more meaningful organization underlying a set of measures than keeping the measures intact will provide (Hinkle, Wiersma, & Jurs, 1979; Tinsley & Tinsley, 1987).

Factor loadings *(correlation coefficients)* calculated for each variable indicated the weight or degree of relationship between each variable and the identified factors. A two-factor solution was adopted and all scale items with a factor loading of .30 or higher were considered in determining the underlying dimension of each factor (see Table 3).

Table 2
Perceptions of Students in an Urban School Setting Toward Business Education Courses (n = 167)

Rank	Item No.	Item Statement	Mean	SD
1	1	The business course prepares me for employment in business-related jobs.	3.35	.55
2	11	The business course is a waste of time for me.*	3.27	.71
3	12	I am glad I enrolled in the business course.	3.26	.65
4	15	My business teacher does not have sufficient knowledge of business jobs and careers.*	3.14	.63
5	2	The business course prepares me for education after high school.	3.12	.54
6	14	The business course in my school is just as beneficial to me as the academic courses (such as English, math, history, etc.) that are required of all students.	3.01	.70
8	10	The business course prepares me to make good career choices.	3.01	.64
7	13	Other elective courses *(such as art, chorus, etc.)* are more beneficial to me than the business course.*	3.00	.66
9	5	The information presented in the business course is out of touch with the "real" world.*	2.94	.67
10	4	I like the types of projects and assignments we do in the business course.	2.93	.55
11	18	The business course is the type of course I would recommend to my friends.	2.91	.55
12	9	The business course improves my ability to get along with other people.	2.86	.73
13	16	The projects and assignments required in the business course are challenging for me.	2.86	.57
14	19	My interest in a business career has increased since I have been in the business course.	2.83	.67
16	7	The business course teaches me how to communicate effectively *(including both speaking and writing)*	2.79	.59
15	17	My business course is boring.*	2.74	.72
18	3	The business course informs me of where to get more education in business after high school.	2.74	.61
17	6	The business course teaches me to solve problems and make effective decisions.	2.73	.62
19	20	The business course prepares me to effectively relate to people of various cultural and ethnic backgrounds in the workplace.	2.65	.69
20	8	The business course teaches me math skills needed by workers in the business world.	2.50	.68

*Note: Statements 5, 11, 13, 15, and 17 were recorded to reflect positive responses.
Scoring Scale: 4 = Strongly Agree; 3 = Agree; 2 = Disagree; 1 = Strongly Disagree

Table 3

Factor Loadings by Varimax Rotation for Student Perceptions Toward Business Education Courses

Perception Scale Items	Personal Relevance of Course Factor 1	Educational Value of Course Factor 2
17	.637	.142
11	.636	.027
13	.630	-.163
12	.627	.114
1	.566	.150
18	.557	.281
15	.511	.029
4	.497	.298
5	.467	-.109
14	.396	.170
2	.301	.082
20	-.144	.724
8	-.214	.617
6	.166	.582
10	.284	.566
9	.195	.549
19	.279	.548
7	.145	.542
3	-.056	.413
16	.234	.369

Note. Factor loadings of .30 or higher were considered in naming each factor.

Eleven items loaded on factor 1. This factor was entitled, *Personal Relevance of Course*. The items which loaded on this factor focused on students' individual satisfaction with the business courses. Four of the items were related to how students personally value and describe the business courses. The other 7 items on this factor included references to preparation for education and employment, quality of course content, and viability of the courses.

The second factor entitled, *Educational Value of Course*, contained nine statements. Four of the items comprising this factor related to academic concerns such as course content and methodology. The remaining five items focused on work-based outcomes of the business courses.

Influence and Comparison of Select Variables

The final research objective was to examine the influence of select variables on student perceptions including gender, grade level, educational level of the parents, and post-graduation plans. Based on the factor analysis results, two variables, personal relevance and education value, were used as dependent variables in an ANOVA that examined influences and compared differences of select variables including gender and grade level. The results of the ANOVA revealed that the independent variables of *grade level* of student participants and *educational level of the mother* generated significant differences in student perceptions toward the educational value of the courses. Gender, completion of other business courses, post-graduation plans, grades earned in school, employment-related variables, reasons for taking the course, and the educational level of the father had no significant impact on student perceptions. The impact of variables generating significant differences is examined in the following paragraphs.

An examination of the influence of grade level on perceptions revealed a significant difference between 10th graders and 9th, 11th, and 12th graders on their perceptions toward factor 2--educational value of the course. On this factor, 10th graders were more positive regarding the academic and work-based outcomes of the course, 11th graders were almost equally as positive, and 9th graders were the least positive. Of interest, although not significant, it was found that 11th graders held more positive perceptions about factor 1--personal relevance of course--followed closely by 12th graders. Again, ninth graders were the least positive about the personal relevance of the business courses.

Another relationship was found between the variable, *educational level of the mother*, and factor 2--educational value of the course. Students whose mothers were four-year college graduates were more positive about the educational value of the business courses than those students who were not sure about the educational level of their mothers. Interestingly, participants whose mothers had only completed some college were more positive about the educational value of the business courses than students whose mothers were two-year college graduates. Although not a significant finding, the fathers of students most positive about the educational value of the business courses were also four-year college graduates or had completed some college.

Implications for Business Education Programs in Urban Secondary School Settings

The findings of this study provide a better understanding of students enrolled in business courses in urban school settings. The extent to which these students believe their involvement in business courses to be relevant and valuable is also shown. Implications for business courses in the urban school's secondary curriculum are discussed below.

Students perceive business courses as having educational value. They believe they are learning their intended academic and work-based outcomes of these courses. Also, students find the courses relevant to their personal lives. This finding supports the view that business courses can provide valuable learning experiences needed by high school youth to meet their future work and educational goals. As school and curriculum reforms are discussed, policymakers and educators must be mindful of students' needs and interests.

Findings of this study suggest that students may form perceptions toward business courses based on two factors--the *personal relevance* and *educational value* of the courses. Future research could expand or clarify these preliminary factors. Based on this analysis of student perceptions, students enrolled in business

courses do not appear to differentiate between traditional academic and vocational course outcomes. Instead, students seem to judge their educational program in a holistic manner looking for value in all of their courses.

Vocational education has been criticized as overemphasizing job skills, consequently rendering new entrants to the workforce unable to read, write, or compute. In response to such criticisms, academic and vocational teachers have decided to collaborate in their efforts to improve basic academic skills and strengthen workplaces (Haynes, 1994). Findings in this study support the need for this type of cooperation between academic and business teachers. Although the mean score of 2.50 on statement 20 falls between agree and disagree, it is the lowest mean of any of the item statements. Significant numbers of students queried in the study did not agree that their business courses teach them math skills needed by workers in the business world. The findings are similar regarding *communication (2.79)* and *problem-solving and decision-making skills (2.73)* although the level of agreement was slightly stronger for these skills than for *math*. These findings suggest that business teachers employ strategies for integrating mathematics, language arts, and expanded basic skills in business courses. For example, concepts of logic and probability can be taught while reinforcing basic math skills and statistics using a spreadsheet (Miles, 1994).

The descriptive data reported in this study relative to students' future occupational and educational plans supports the view that career counseling for urban students should be given more consideration (Winborne & Dardaine-Ragguet, 1993). Students in this study felt their business teachers were doing a fairly good job of providing information about careers; however, guidance counselors were not seen as a good source of information about careers. Counselors need to be as interested in placing students on a successful career path as they are in getting them into college. Since a considerable percentage of students indicated being undecided about a future career or college major, teachers of business courses may need to devote more time to career exploration and decision-making activities.

The fact that a substantial number of students were not sure if they had taken other business courses and were not sure if they were involved in a cooperative on-the-job training experience suggests need for improved academic counseling and increased clarity when marketing business courses and programs. Students enrolling in business courses should do so because they understand the purpose and potential benefits of the courses or programs, not for reasons such as need of an additional credit. Business education and business educators should empower students to investigate and make decisions leading to a personally satisfying life, recognizing that what constitutes a *satisfying life* is different for each student.

The results of this study support the use of innovative approaches that attempt to integrate academic and vocational curricula (e.g., career academies, tech prep). Most students enrolled in the business courses indicated they will seek further education and most reported enrolling either because the courses would be helpful in college or in locating jobs after high school. Business courses should be delivered as school-to-work preparation, incorporating preparation for success *and* progress in whatever post-graduation choice students make. Also, as tech-prep initiatives are developed in various states, business educators need to consider how business courses fit into formal articulation agreements between secondary schools and two-year, post-secondary institutions.

Potential for the literacy level of mothers to exert influence on their children's academic achievement and significant differences in student attitudes about secretarial occupations by their mothers' educational level have been reported (Benjamin, 1993; Henry, 1990). Findings in this study also support a relationship between the educational level of the students' mothers and how the students value business courses. Students whose mothers were four-year college graduates were more positive about the educational value of the business courses than those students who were not sure about the educational level of their mothers. The educational level of the fathers had no significant influence on the students' perceptions. Some may attempt to interpret this result by assuming that the majority of these urban students are products of homes where the sole or primary caregiver is the mother. However, there may be other explanations for this outcome (e.g., *roles, relationships, gender*) that can be discerned through further study.

Summary

The reader should be reminded that these findings cannot be generalized beyond the present population. Also, limitations with self-report survey methodology should be considered as results are interpreted. Yet, even with these limitations, the study represents one approach in clarifying the role of business courses in the urban high school. In general, the results of this study contradict traditional views of urban students. For example, these students do have career plans, expect to continue their education, value school and work, and most of them identified realistic expectations. During this period of education reform, information has been provided that may assist business educators in promoting and positioning courses as relevant and educationally valuable learning alternatives for urban secondary students.

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Secretarial Tasks and Skills Required in Egyptian and American Business Enterprises: A Comparative Study

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Abstract

This study purports at identifying the secretarial tasks performed by secretaries including secretaries graduated from the Secretarial Studies Program (SSP), Center for Adult and Continuing Education (CACE), at the American University in Cairo (AUC) and secretaries graduated from other institutes. In addition, it tries to determine the difference in perceptions of secretaries and their department directors concerning the various secretarial skills including computer tasks created by new office technologies. The objective is to develop the curriculum of the Secretarial Studies Program of the American University in Cairo to match the market employment needs. The data which constitute the basis of the present research were collected using questionnaires addressed to 122 secretaries and 65 department directors. A two-tailed t-test was used to determine the significance of the difference between perceptions of secretaries graduated from SSP/AUC and those graduated from other educational institutes, and department directors. The implications for SSP/AUC curriculum revision based on the analysis of the data is presented. The findings of this study were compared with published research conducted on the secretaries working in different organizations in the USA.

Introduction

Egypt is pursuing an open-door economic policy where most of the state owned enterprises are being privatized. In addition, many multinational business firms are heavily investing in Egypt.

The curriculum of the Secretarial Studies Program of the American University in Cairo is being periodically updated to prepare graduates to survive in this new business environment. Tasks assigned to secretaries in their work places should be identified and curriculum should be amended to provide secretarial students with skills needed for their future business careers. In other words, to avoid the mismatch between job requirements and skills of graduates entering the work place, curriculum should be revised periodically.

To properly develop the secretarial studies curriculum, the perceptions of secretaries and their department directors about different secretarial skills and responsibilities should be identified. The feedback provided by graduates and their department directors is extremely important in this concern. The discrepancy between the perceptions of the two groups should be analyzed and the underlying reasons should be uncovered.

A survey of the literature revealed that no research work concerning secretarial skills required in different business organizations in Egypt has been conducted. This study appears to be the first one to be carried out in Egypt on this topic.

Another concern of the researcher is to find out the differences and similarities of the perceived importance of secretarial skills and tasks performed by secretaries working in Egyptian and American business organizations.

Purpose of the Study

1. To determine the various secretarial tasks performed by secretaries graduated from Secretarial Studies Programs (SSP), the Center for Adult and Continuing Education (CACE), the American University in Cairo (AUC) and from other institutions working in different business enterprises in Egypt.
2. To determine the perceptions of secretaries and their department directors of the various secretarial skills with special emphasis on computer tasks created by new technologies and the business environment.
3. To compare the relative importance of secretarial skills required in the Egyptian and American business environments.
4. To gain some insight into the types of secretarial skills deemed important in American business environments, and which are thus likely to be deemed important in the multinational firms operating in Egypt.
5. To make recommendations pertinent to revamping and developing the current secretarial studies curriculum in SSP/AUC.

Methodology

Sample

The study involved secretaries graduated from SSP/AUC from 1991 to 1994, secretaries graduated from other educational institutes, and department directors of various business organizations.

As the largest business center in Egypt, Cairo was chosen as the location for carrying out this research. A list of 180 SSP/AUC graduates with known business addresses in Cairo, was prepared. Of those, one hundred graduates were randomly selected to receive the questionnaire. From the same business organizations at which the SSP/AUC graduates are working, a stratified random sample including 100 secretaries graduated from other educational institutes and 100 department directors were selected. The questionnaires were distributed to the sample individuals. The usable responses received were 46 from SSP/AUC graduates, 76 from secretaries graduated from other institutes and 65 from department directors.

Questionnaire

Based on a thorough literature review, a questionnaire was developed by the researcher, reviewed by research experts of the Educational Assessment Unit of the CACE/AUC and two vocational education instructors. The questionnaire was piloted with 12 secretaries and 10 department directors not included in the sample. Based on their feedback, minor modifications were made.

The first part of the questionnaire addressed demographic information regarding gender, age, educational level completed, the type of business, and years of experience. The second part was composed of 27 questions to measure the perceived importance of different secretarial skills and responsibilities assigned to secretaries. The third part included 30 questions concerning computer software used by secretaries.

The following five-point Likert-type scale was used in this questionnaire to compare the perceptions of the two groups of respondents; secretaries and department directors, concerning their perceptions of the importance of the different secretarial skills and computer tasks performed by secretaries: (5) essential, (4) very important, (3) important, (2) somewhat important, (1) not important.

Statistical Data Analysis

The demographic data were analyzed using frequencies and relative frequencies. Data collected through the Likert-type scale resulted in quantitative comparisons of means of perceptions of the different groups concerning secretarial skills. A two-tailed t-test was used to determine if a significant difference exists in the means of perception between the studied groups. A 0.05 level was used to determine the significance. A computer package (Statistical Package for Social Sciences "SPSS/PC+") was used to perform the analysis.

Findings

Demographics

The first research area examined was the demographic characteristics of the secretaries and the department directors responding to this study. The distribution of responding secretaries by gender, age, educational background, the type of employers business and years of experience are shown in Tables 1-5 respectively, while the distribution of responding department directors by gender, age and type of business is shown in tables 1,2 and 4.

Table 1
Gender

Gender	Secretaries Frequency	Secretaries Percent	Department Directors Frequency	Department Directors Percent
Male	2	1.6	46	70.8
Female	120	98.4	19	29.2
Total	122	100.0	65	100.0

Table 2
Distribution of Respondents by Age

Age group (years)	Secretaries Frequency	Secretaries Percent	Department Directors Frequency	Department Directors Percent
<=24	65	53.3	1	1.5
25-29	24	19.6	9	13.8
30-34	17	13.9	11	16.9
35-39	3	2.5	12	18.5
40-44	3	2.5	10	15.4
45-49	2	1.6	5	7.7
50+	-	0.0	8	12.3
Missing	8	6.6	9	13.8
Total	122	100.0	65	100.0

Table 3
Level of Postsecondary Education Achieved by Secretaries

Education	Frequency	Percent
None	2	1.6
Presently working on Bachelor's Degree	3	2.5
Secretarial professional certificate (SSP/AUC)	40	32.8
Secretarial certificate (other institutes)	4	3.3
Bachelor's Degree	63	51.7
Bachelor's Degree+Secretarial professional certificate (SSP/AUC)	6	4.9
Bachelor's Degree + Secretarial certificate (other institutes)	1	0.8
Master's Degree	1	0.8
Missing	2	1.6
Total	122	100.0

Table 4
Distribution of Respondents by Type of Business

Type of Business	Secretaries Frequency	Secretaries Percent	Department Directors Frequency	Department Directors Percent
Hotel	29	23.8	19	29.2
Banking & finance	22	18.0	14	21.5
Education	12	9.9	2	3.1
Non-profit (international organizations)	11	9.0	7	10.8
Retail/Wholesale	11	9.0	3	4.6
Airlines/Travel agencies	10	8.2	8	12.3
Consulting	10	8.2	3	4.6
Other	17	13.9	9	13.9
Total	122	100.0	65	100.0

Table 5
Distribution of Responding Secretaries by Years in Secretarial Positions

Years in Secretarial Position	Frequency	Percent
<=5	82	67.2
6-10	19	15.5
11-15	11	9.0
16-20	4	3.3
21+	3	2.5
Missing	3	2.5
Total	122	100.0

Gender. There were 2 male respondents out of the 122 secretaries indicating that the secretarial career is still almost exclusively a female one.

Age. The age of secretaries ranged between 19 and 48 years with an average of 26.1 years. The largest number of secretaries responding were in the 24 and less age category (53.3%) with the next largest category being 25-29 age category (19.6%).

Education. Table 3 displays the levels of postsecondary education. From the responding secretaries, 32.8% received their secretarial certificates from the SSP/AUC and 3.3% from other institutes. Of the 122 respondents, 51.7% obtained a bachelor's degree and 0.8% completed postgraduate degrees.

Type of business. Of the 122 secretaries who responded to the survey, the major types of organizations represented were hotels (23.8%), banking and finance (18.0%), education (9.9%), non-profit international organizations (9.0%), retail and wholesale (9.0%), airlines and travel agencies (8.2%), consulting firms (8.2%). However, the remaining respondents represented other types of businesses including oil, chemical and pharmaceutical, food, communications and advertising agencies (Table 4).

Years of experience. The years spent in secretarial position averages at 4.45 years with a maximum of 22 years of experience (Table 5).

Perceptions

The secretaries and department directors responses about the perceived importance of the 27 secretarial skills are rank ordered in Table 6. Secretaries' perceptions of skills differed significantly from those of directors in 6 skills. Department directors perceived the importance of the following skills more highly than secretaries did: English typing, Arabic typing, answering and screening telephone calls, sending telexes, maintaining meeting minutes and maintaining library. English and Arabic typing are very important to department directors because these skils are mostly used in filling office forms and cutting cheques. Department directors are usually very keen about their secretaries answering and screening their telephone calls properly. The telex might be perceived by secretaries as an obsolete way of communication having been replaced by fax. However, in Egypt telex is still very important because the messages sent this way may be used as an evidence in court in case of dispute, while faxes may not be accepted in the Egyptian judicial system and governmental agencies. This concept is not as well perceived by secretaries as by the directors. The results reveal that department directors are usually more concerned about keeping meeting minutes as a permanent record than secretaries do. In addition, department directors showed more interest in maintaining libraries and the like than their secretaries did.

The sample included 43 secretaries and 43 directors working for the same organizations. Table 6 displays the responses of the perceived importance of the 27 skills. It is evident that the difference in perception of the importance of the secretarial skills is insignificant in 25 skills and significant in two skill items only: namely, Arabic word processing and Arabic typing. Arabic language is the official language which is used in written communications with the Egyptian governmental agencies and its importance was highly perceived by department directors.

The sample included 11 secretaries graduated from SSP/AUC and their corresponding department directors. There was no significant difference in their perception of the importance of all of the 27 secretarial skills (Table 7). While the above mentioned secretaries are but a small number and, therefore, the results are not conclusive, their responses are an indicator of having a common perception of the importance of the 27 skills.

Comparisons based on rank orders. Comparison between the perceived importance of skills should consider the difference between means of perceptions between any two studied groups and the comparison of rank orders of the skill perceptions by the two compared groups. In this study, the overall mean of the department directors perceptions averages at a value significantly higher than that of the secretaries (3.62 and 3.84 respectively). Since the overall rating of the perceived importance of the skills among secretaries is lower than that among directors, it is use-

Table 6
Perceived Importance of Secretarial Skills by Secretaries and Department Directors

Skill	All Respondents: Secretaries (n=122)		Directors (n=65)		t_1	Secretaries (n=43)		Their Corresponding Directors (n=43)		t_2
	Rank	Mean	Rank	Mean		Rank	Mean	Rank	Mean	
English language speaking fluency	1	4.74	5	4.54	1.61	3	4.77	3	4.65	1.04
English word processing	2	4.66	1	4.74	0.66	1	4.88	1	4.86	0.30
Filing	3	4.64	3	4.60	0.34	2	4.79	2	4.72	0.62
English language written communication	4	4.63	4	4.55	0.76	4	4.77	4	4.65	1.09
Receiving visitors	5	4.11	10	4.20	0.60	10	4.07	9	4.30	1.09
Answer/screen telephone calls	6	4.10	6	4.49	2.42*	5	4.35	5	4.58	1.28
English typing	7	4.07	2	4.66	3.39*	6	4.35	6	4.58	1.37
Handling confidential material	8	4.07	7	4.32	1.28	7	4.23	8	4.40	0.63
Corrdinating & scheduling appointments	9	4.06	9	4.25	1.02	8	4.19	10	4.21	0.12
Handling the mail	10	4.02	8	4.32	1.95	9	4.16	7	4.49	1.53
Proofreading	11	3.91	13	3.94	0.14	14	3.86	11	4.21	1.43
Providing information	12	3.84	12	3.98	0.76	13	3.88	13	3.95	0.32
Photocopying	13	3.78	17	3.69	0.41	11	4.07	17	3.65	1.51
Sending faxes	14	3.74	11	4.14	1.97	12	3.91	12	4.16	1.07
Arabic language written communication	15	3.62	16	3.72	0.50	19	3.44	15	3.74	1.11
Composing/writing correspondance	16	3.61	14	3.92	1.56	15	3.79	14	3.93	0.52
Arranging business meetings	17	3.52	15	3.92	1.85	16	3.70	16	3.74	0.18
Translation	18	3.43	21	3.46	0.13	17	3.63	22	3.35	1.13
Decision making during absence of manager	19	3.39	18	3.63	1.11	18	3.53	18	3.53	--.--
Making travel arrangements	20	3.17	20	3.49	1.48	20	3.30	19	3.53	1.04
Arabic word processing	21	3.15	22	3.45	1.37	22	2.74	20	3.44	3.11*
Taking meeting minutes	22	2.96	19	3.58	2.70*	21	3.02	21	3.42	1.47
Arabic typing	23	2.84	23	3.40	2.57*	24	2.60	23	3.19	2.35*
Accounting & bookkeeping	24	2.60	27	2.43	0.81	26	2.47	26	2.35	0.48
Note taking (speedwriting/shorthand)	25	2.54	24	2.92	1.75	23	2.63	24	2.56	0.27
Sending telexes	26	2.30	25	2.78	1.98*	25	2.49	25	2.49	0.00
Maintaining library	27	2.11	26	2.63	2.21*	27	2.14	27	2.33	0.63

1) 0.05 Level of significance = 1.97
2) 0.05 Level of significance = 2.02
* Difference is statistically significant at P<0.05

ful to consider the comparison based on rank ordering in addition to that of each skill mean.

The most highly ranked 10 skills perceived by both secretaries and department directors included the same skill items, but in different orders. English language speaking fluency emerged at the top of the secretaries' list, while department directors rated it as the fifth most important skill. English word processing which was the second most important skill in the secretaries' list was ranked as the first in the list of department directors. Receiving visitors has the fifth rank in the secretaries' list while department directors perceived it as the tenth most important skill. Directors ranked English typing importance more highly than the secretaries did. Department directors perceived handling mail as number 8 in its importance compared to rank number 10 in the secretaries' list. Both secretaries and department directors gave filing, English language written communication, and answering/screening telephone calls the same ranks.

Department Directors ranked photocopying as number 17, while secretaries ranked it as number 13 in importance. Accounting and bookkeeping, note taking, sending telexes, and maintaining library were ranked near the bottom of the two lists. Using rank order, this comparison reflects how each group perceived the importance of a given skill relative to the importance of the other skills. However, the comparison using means reflected the discrepancies in perception of the importance of a given skill between the two groups.

Comparison between SSP/AUC graduates and graduates from other institutes. One of the researcher's concerns was to find out the similarities and contrasts between the perceptions of SSP/AUC graduate secretaries and the secretaries graduated from other educational institutes.

As far as the ranking is considered, both groups acknowledged the importance of filing, English language speaking fluency,

Table 7

Perceived Importance of S etarial Skills by Secretaries Graduated from SSP/AUC and Department Directors

Skill	SSP AUC Secretaries (n=46)		Directors (n=65)		t_3	SSP AUC Secretaries (n=11)		Their Corresponding Directors (n=11)		t_4
	Rank	Mean	Rank	Mean		Rank	Mean	Rank	Mean	
Filing	1	4.65	3	4.60	0.38	4	4.55	3	4.64	0.36
English language speaking fluency	2	4.65	5	4.54	0.71	3	4.73	8	4.45	0.76
English word processing	3	4.59	1	4.74	0.88	1	5.00	1	5.00	-- --
English language written communication	4	4.41	4	4.55	0.83	2	4.82	6	4.55	1.00
Receiving visitors	5	4.09	10	4.20	0.51	10	4.18	4	4.64	1.17
Photocopying	6	3.93	17	3.69	0.94	10	4.18	19	3.36	1.24
Handling confidential material	7	3.91	7	4.32	1.60	15	3.82	9	4.36	0.77
Handling the mail	8	3.87	8	4.32	2.02*	10	4.18	10	4.36	0.56
Proofreading	9	3.85	13	3.94	0.33	13	3.91	6	4.55	1.47
Corrdinating & scheduling appointments	10	3.83	9	4.25	1.61	13	3.91	11	4.18	0.67
Answer/screen telephone calls	11	3.74	6	4.49	2.77*	5	4.55	2	4.73	0.61
English typing	12	3.65	2	4.66	3.83*	7	4.27	6	4.55	0.90
Providing information	13	3.65	12	3.98	1.19	13	3.91	17	3.64	0.46
Sending faxes	14	3.41	11	4.14	2.42*	8	4.27	13	3.91	0.84
Arabic word processing	15	3.37	22	3.45	0.27	18	3.55	15	3.82	0.61
Translation	16	3.33	21	3.46	0.48	6	4.36	16	3.82	1.11
Composing/writing correspondance	17	3.22	14	3.92	2.57*	16	3.73	14	3.91	0.31
Arabic language written communication	18	3.22	16	3.72	2.01*	21	3.18	12	4.18	1.58
Arranging business meetings	19	3.20	15	3.92	2.47*	18	3.55	21	3.18	0.71
Decision making during absence of manager	20	3.09	18	3.63	1.80	18	3.55	18	3.45	0.19
Making travel arrangements	21	2.96	20	3.49	1.87	20	3.36	22	3.00	0.69
Accounting & bookkeeping	22	2.46	27	2.43	0.10	25	2.36	25	2.45	0.20
Taking meeting minutes	23	2.37	19	3.58	4.12*	22	2.82	20	3.36	0.92
Arabic typing	24	2.35	23	3.40	3.82*	24	2.64	23	3.00	0.57
Note taking (speedwriting/shorthand)	25	2.17	24	2.92	2.69*	23	2.82	24	2.91	0.16
Maintaining library	26	1.67	26	2.63	3.55*	27	1.82	26	2.18	0.74
Sending telexes	27	1.54	25	2.78	4.63*	26	2.00	27	1.64	0.77

4) 0.05 Level of significance = 1.98

3) 0.05 Level of significance = 2.23

* Difference is statistically significant at $P<0.05$

English Wordprocessing, and English language written communication by ranking them on the top of their lists (Table 7). Note taking, maintaining library, and sending telexes came at the bottom of the lists of both groups. Means of perceptions of both groups concerning those skills were less than 3.0.

Comparison between the importance of skills and tasks performed by secretaries working in Egypt and those working in US organizations. The present study is based on a comparison of data collected about the perceptions of the secretaries working in Egypt with previously published research concerning the responsibilities and tasks performed by secretaries and those employed in office field in different American organizations. The skills and tasks examined in this study and the studies conducted in USA differ. Thus, the comparison was confined to those skills and tasks examined in the American studies and are common to skills and tasks examined in this study. For this end, a list including 12 secretarial skills was taken from the 20 skills studied by Creighton, Kilcoyne & McDonald (1992), 17 out of the 74 skills studied by Martin (1993) and 10 out of the 14 skills surveyed by Gonzenbach & Davis (1994).

When comparing the perceived importance of skills, the two group means of perceptions could not be used because the survey instruments used in measuring them were different. Instead, rank orders were used for comparisons. Different skills and tasks performed by secretaries were rank ordered according to the perceived importance of each skill in the first list taken from the study of Creighton et al. and according to the frequency by which task was performed in the list taken from Martin's study, and with respect to the percentage of respondents performing the task taken from Gonzenbach & Davis' study (Table 8).

The importance of the rank ordered skills and tasks included in the three lists that were drawn from the American studies were compared to the skills reported in the Egyptian study that are rank ordered according to their perceived importance by secretaries working in Egyptian organizations (Table 8).

Table 8
Short Lists of Rank Orders of Skills and Tasks Performed by Secretaries Taken from Different Studies

(1)	(2)	(3)	(4)
1. English language speaking fluency	1. Photocopy documents	1. Filing records mgmt.	1. Typing keyboarding
2. English wordprocessing	2. Answer/screen calls	2. Photo copying	2. Verbal communication
3. Filing	3. Handling confidential material	3. Answering phone	3. Telephoning
4. English language written communication	4. Proof read documents	4. Handling mail	4. Personal computer skills
5. Receiving visitors	5. Maintain manual files	5. Greeting visitors	5. Coordinating & scheduling
6. Answer/screen telephone calls	6. Compose correspondence	6. Composing/writing	6. Greeting visitors
7. English typing	7. Sort/distribute mail	7. Arranging meetings	7. Composing/editing
8. Handling confidential material	8. Key correspondence/reports	8. Bookkeeping/acct.	8. Effective written communications
9. Coordinating & scheduling appointments	9. Receive visitors	9. Making travel arrangements	9. Copying & duplications
10. Handling the mail	10. Send facsimiles	10. Shorthand	10. Filing (manual)
11. Proofreading	11. Provide information		11. Process/distribute mail
12. Providing information	12. Schedule appointments		12. Note taking (Shorthand/ speedwriting)
13. Photocopying	13. Making decisions during absences		
14. Sending faxes	14. Prepare meeting materials		
15. Arabic language written communication	15. Making travel arrangements via agents		
16. Composing/writing correspondence	16. Process accounts		
17. Arranging business meetings	17. Rapid note taking		
18. Translation			
19. Decision making during absence of manager			
20. Making travel arrangements			
21. Arabic wordprocessing			
22. Taking meeting minutes			
23. Arabic typing			
24. Accounting & bookkeeping			
25. Note taking (speedwriting /shorthand)			
26. Sending telexes			
27. Maintaining library			

(1) The present study
(2) Drawn from Martin (1993)
(3) Drawn from Gonzenbach and Davis (1994)
(4) Drawn from Creighton, Kilcoyne & McDonald (1992)

The comparison of the three limited lists of the American studies with the Egyptian one revealed that the rank orders of the skills were different. The most important skills in the Egyptian study included English language speaking fluency, English wordprocessing, filing, English language written communication, receiving visitors and answering/screening telephone calls. Only two of these skills (answering/screening calls and maintaining manual files) were included as the top important skills in the list drawn from Martin's study. Answering phone calls and filing were common skills near the top of both limited lists drawn from Gonzenbach & Davis' study and the Egyptian one. Typing, verbal communication, and telephoning were among the important skills in both the limited list drawn from Creighton et al. study and the Egyptian one. Note-taking (speedwriting, shorthand), making travel arrangements, and bookkeeping and accounting were considered not important in both the Egyptian and American studies. Receiving and greeting visitors was perceived as very important in the Egyptian study but appeared in the middle of all the three American studies. Composing and writing were considered of moderate importance in both the Egyptian and American studies.

Noteworthy to mention is that skills related to English language speaking fluency, English word processing, and English language written communications came among the top five important perceived skills in the Egyptian study. This could be explained by the fact that international organizations and joint venture companies hire bilingual employees and offer high salaries. English verbal and written communication and English word processing are the key to such jobs. Therefore, these skills were highly perceived by secretaries working in Egypt.

Software usage by secretaries in Egyptian and American organizations. Table 9 shows the different types of software used

by secretaries working in Egyptian organizations compared to their counterparts in USA.

Table 9
The Different Types of Computer Software Used by Secretaries Working in Egyptian and American Organizations

Type of Software	Egypt[1]	USA[2]	USA[3]	USA[4]	USA[5]
Wordprocessing (English)	95.2	74.0	95.4	78.0	84.9
Spreadsheet	44.3	28.0	72.9	48.0	47.0
Graphic	38.5	14.0	40.5	20.0	27.4
Database	34.4	27.0	46.2	26.0	31.2
Desktop publishing	22.1	11.0	18.9	15.0	14.0
Wordprocessing (Arabic)	76.2				
Statistics	17.2				

1 The present study
2 Gonzenbach and Davis (1994)
3 PSI member profile (1993)
4 Barton and Citano (1992)
5 Martin (1992)

Word processing was the most popular type of software used by secretaries in both Egypt and USA, followed by spreadsheet software. Graphics was rank ordered before databases by secretaries working in Egypt, while the reverse situation was found in USA. Desktop publishing was the least used by secretaries in both countries. Noteworthy to mention is that the same rank order was given by the 4 American studies.

Arabic word processing and statistics software were not included in the American studies. However, Arabic word processing was the second most commonly used (76.2%) by Egyptian secretaries, while statistics software was the least (17.2%).

Concerning secretaries working in Egyptian organizations, SSP/AUC graduates perceived databases as being more important than graphics, and desktop publishing as more important than statistics. Secretaries graduated from other institutes had a reverse order. Department directors rank ordered the perceived importance of computer applications similar to SSP/AUC graduates except in giving statistics more relative importance than graphics.

Usage of computer software packages by secretaries working in Egyptian business organizations. The most frequently used computer software packages in different computer applications were WordPerfect, followed by WinWord in word processing, Lotus 123 followed by Excel in spreadsheets, dBase followed by FoxPro in databases, Harvard Graphics followed by 3DS in graphics, and SPSS in statistics.

Conclusions and Recommendations

Secretaries and department directors are more alike than different in terms of their perceptions of the importance of the secretarial skills examined in this study. However, secretaries perceived six skills differently from department directors. Perceptions of secretaries and department directors working in the same departments differed only in two skills. Secretaries graduated from SSP/AUC and their corresponding directors had similar perceptions concerning the importance of secretarial skills without any significant difference between the two groups.

There were more similarities than differences between secretaries working in Egyptian and those working in American organizations concerning the skills and tasks performed by the two groups. However, the rank order of skills perceived to be the most important was not consistent in the two groups nor among the different studies concerning secretaries working in the American organizations.

The following recommendations are made, based on the findings and conclusions of this study:

1. English word processing, filing and English written and oral communication should be more emphasized in the SSP/AUC curriculum.

2. Consider the following changes to SSP/AUC curriculum:
   -Incorporate Arabic word processing in the curriculum and reduce the time allotments to Arabic typewriting.
   -Add Arabic language written communication course to the curriculum.
   -Include a course on spreadsheet software applications in the SSP/AUC curriculum.
   -Assess periodically the need for courses covering the areas of maintaining library, note taking (speedwriting and shorthand), telex operations, accounting and book keeping as those skills were considered the least important skills surveyed. Those courses could be offered as elective courses.

3. Ongoing research is needed to monitor the secretarial skills needed in work places to better prepare secretarial students for their future careers.

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Students' Perceptions of Effective Instructional Delivery Systems[1]

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Abstract

The purpose of this study was to determine which training delivery methods were perceived as *effective* by students and what training delivery methods *were used* by instructors in academia as observed by their students. Fourteen instructional methods were rated; they included case study, computer-assisted instruction, coaching/mentoring, computer-based training, films/video, interactive video, lecture, supervised on-the-job training, peer tutoring, programmed instruction, role playing, seminars/workshops, simulations, and team teaching.

Data from the study reveal that students perceived eleven of the training methods as effective: supervised on-the-job training, simulations, coaching/mentoring, role playing, seminars/workshops, case study, computer-assisted instruction, interactive video, team teaching, peer tutoring, and computer-based training; lecture was the only instructional method the students observed as used by their instructors.

Purpose and Importance of the Study

Today, the education and training of employees is a responsibility which is jointly shared by industry and academia. Technology, however, has advanced at such a rapid rate since the introduction of microcomputers in the early 1980's that it is almost impossible financially for academia to purchase current technology and to update curricula fast enough to keep pace with the changes. Workers need to be retrained and educated so that industry can take advantage of new technology. New work methods, such as total quality management and self-directed work teams, require industry to provide additional training for their workers. These methods are dictating that employees acquire a different set of skills to succeed in an increasingly competitive environment. Advancement in the workforce may depend on an employee's willingness to continue to learn and develop professionally. It stands to reason then that instructors in academia must employ various methods to better prepare prospective employees for initial and continuing employment.

The training of employees is a major expenditure for industry. Businesses are spending 200+ billion dollars to train over 14 million people annually (Carnevale, 1988). Evolving technology is creating more and different delivery systems, such as distance learning with fully interactive videoconferencing, CD-ROM-based training, and computer-based decision-making groupware--all of which will have an impact on an employee's training, development, learning, and advancement.

Many current training delivery methods focus on individualized learning, team building, and machine-mediated instruction. However, traditional classroom methods, such as lecture, group discussion, and presentations, continue to be the mainstay of training and teaching. The guiding principle for selecting the appropriate teaching/training technique and location remains the desired performance or outcome for the learner, regardless of the domain of learning--affective, psychomotor, or cognitive.

In 1984, Nell Eurich found that training in corporate classrooms resembled traditional classrooms, but "not all companies were satisfied with the stand-up teacher [lecture] or the sit-down talking [discussion] instructor" (p. 52). She found that many companies were experimenting with role playing, team projects, case studies, programmed instruction, computer networks, films, individual self-studies--an assortment of teaching methods that are experimental, "especially when compared to the average college or university classroom" (p. 53). However, she also found that corporate training is objective based, specific, and measurable--not unlike the college or university classroom instruction.

In the decade since Eurich's study, training, education, and development in business and industry have taken a prominent place in the thinking of business leaders, educators, and Congress. This is due in part to the national, comprehensive workplace skills study by Carnevale that he labeled the "learning enterprise" (1989, p. 26), as well as to the realities of changing technology, a dwindling workforce, and competition in a world

[1]This study was partially completed through an Instructional Development Grant awarded to the authors by Eastern New Mexico University. At the time this paper is being submitted, only data from students are available. It is anticipated that data from trainees' perspectives will be available when the paper is presented at the DPE National Research Conference.

market. Of necessity, the instructional methodologies must change to meet the needs of the workforce in the 21st century.

Due to the costs of education and training, it is imperative that the best training methods be used to educate, efficiently and effectively, the student who will be entering and competing for jobs in the global workforce. The purpose of this study is to determine which instructional methods are most effective from the perspective of students in academic classrooms. Information from this study may result in the selection and development of innovative classroom teaching techniques and presentation materials.

Objectives of the Study

Specifically, answers to the following research questions were sought from the respondents in this study:

1. What training delivery methods are perceived as effective by students taught by instructors in academia?
2. What training delivery methods were used by instructors in academia as observed by students?
3. How do the responses of students in academia compare to responses to the same research questions by professional trainers and business-teacher educators?

An additional objective of this study was to compare the findings from a study conducted by Everett and Drapeau (1994). The two-year study utilized training experts, who were members of the American Society for Training and Development, and members of the National Association of Business Teacher Education to rate the effectiveness and use of 14 training delivery systems.

The comparisons should give an interesting snapshot into effective instructional methodology, as well as provide an insight into what methods trainers and educators use to deliver instruction and which methods students perceive to be effective.

Research Methods and Procedures

In order to answer the research questions in this study, the following procedures were employed:

Everett and Drapeau (1994) identified and validated fourteen teaching methods and how trainers and business teacher-educators perceived their effectiveness and use. The fourteen training methods were case study, computer-assisted instruction, coaching/mentoring, computer-based training, films/video, interactive video, lecture, supervised on-the-job training, peer tutoring, programmed instruction, role playing, seminars/workshops, simulations, and team teaching. The 14 training delivery systems appear to run the gamut from individualized learning to machine-mediated instruction to traditional classroom methods.

Two survey instruments were developed: (1) The pre-test instrument used the following Likert-type scale to rate the effectiveness of the identified methods: 4=Highly Effective; 3=Effective; 2=Somewhat Effective; and 1=Not Effective. For purposes of this study, instructional systems were perceived to be *effective* if they received a mean ranking of 2.5 and above. (2) The post-test survey instrument added an additional scale item that asked students if the method had been used (0=Not Used). A training method was *used* frequently if it received a mean ranking of 0.5 and above.

The students were self-selected and were required to sign a consent form if they chose to participate. In all, 67 students participated in the study. This number represents approximately 17% of the student enrollment in the College of Business in the Spring 1994 semester.

Students were surveyed during the first and last weeks of the semester. Professors who volunteered to participate in the study were assisted by the researchers to develop materials for teaching techniques different from their normal methods, if requested to do so.

Descriptive techniques are utilized to present the data collected in the study. Specifically, means and tests of significance are employed to present the answers to the research questions.

Limitations and Delimitations

The results of the two surveys should be interpreted in light of the limitations of the survey method. While face-to-face, individual interviews might have yielded more precise perceptions of the training delivery systems, time and limited resources prevented the researchers from using them. Only perceptions of the respondents were sought in this study; therefore, the findings may have limited generalizability.

In addition, the findings in this study may reflect only the perceptions of the students in the College of Business at Eastern New Mexico University, Portales, New Mexico.

Presentation of Findings

It would appear that the respondents who participated in this study were enrolled in a broad configuration of upper-level classes, as follows: Marketing, Management, Advanced Business Communications, Training and Development, and Curriculum Development in Vocational Education. No demographic data were collected about the students in this study.

In all, three instructors who taught the five classes participated in the study. Pre-test surveys were completed by 67 students; however, post-test surveys were available from only 29 students–approximately 40% of the pre-test respondents. The end of the semester appears to be an inconvenient time for additional class activities. It was left to the discretion of the instructor when to introduce and distribute the survey instruments. Also, the researchers were available to conduct the study for instructors.

Table 1 presents the data related to the research question that asked, What training delivery methods are perceived as effective by students taught by instructors in academia?

Table 1
Perceived Effectiveness of Training Methods by Students as Presented by the Mean Ranking
n=67

Survey No.	Method	Means	S.D.
13	Supervised OJT	3.485	0.789
12	Simulations	3.197	0.769
2	Coaching/Mentoring	3.104	0.800
10	Role Playing	3.090	0.830
11	Seminars/Workshops	2.788	0.755
1	Case Study	2.672	0.746
3	CAI	2.667	0.751
6	Interactive Video	2.652	0.690
14	Team Teaching	2.627	1.027
8	Peer Tutoring	2.567	0.802
4	Comp.-Based Training	2.561	0.747
7	Lecture	2.448	0.840
5	Films/Video	2.224	0.755
9	Programmed Instruction	2.188	0.687

It appears from the data in Table 1 that 11 of the 14 training methods were perceived as effective (receiving a mean ranking of 2.5 or above). Lecture, films/video, and programmed instruction were not perceived as effective by the students. It may be interesting to note that 4 of the 11 methods perceived as effective could be classified as individualized learning methods (simulations, computer-assisted instruction, interactive video, and computer-based training); and 4 of the 11 methods could be categorized as on-the-job training (seminars/workshops, peer tutoring, coaching/mentoring, and supervised on-the-job training); and 3 methods (role playing, team teaching, and case study) may be considered traditional classroom teaching methods.

To find if there was a significant difference in students' perception of the effectiveness of the instructional methods, ANOVA tests were applied on the 14 rating scores as a repeatedly measured dependent variable. The results showed the F ratio not to be significant (F [37,880]= 10.67, p>0.295). However, 3 of the methods showed the F ratio to be significant: interactive video (F [34,439]= 7.408, p>.000); computer-based training (F [36,667]= 22.589, p>.000); and computer-assisted instruction (F [41,455]= 6.164, p>.001).

Table 2 presents the comparison of the 14 methods based on the mean rankings of the three groups--the expert panel of professional trainers, business teacher-educators, and students--in partial answer to the third research question in this study.

In Table 2, these comparative findings are noted: The expert panel ranked 12 of the 14 methods as effective. The expert panel ranked programmed instruction as effective; the other two groups did not. The business teacher-educators ranked 10 of the 14 methods as effective. Lecture was ranked as effective by the educators; the other two groups did not perceive lecture to be an effective teaching method. Films/video were ranked as effective by the expert panel and the educators but not by the students. Several of the 11 methods which were ranked as effective by the students also were ranked as effective by the expert panel but not by the educators: computer-based training, team teaching, and interactive video. One method, role playing, was ranked effective by educators and students, but not by the expert panel.

Table 3 presents the data related to the research question that asked, What training delivery methods were used by instructors in academia as observed by students?

Table 2
Ranking of Perceived Effectiveness of Training Methods by Expert Panel, Business Educators, and Students

Expert Panel n=45	Rank	Educators n=128	Rank	Students n=67	Rank
Simulations	1	Case Study	1	Supervised OJT	1
CAI	2	Supervised OJT	2	Simulations	2
Films/Video	3	Simulations	3	Coaching/Mentoring	3
Peer Tutoring	4	Coaching/Mentoring	4	Role Playing	4
Coaching/Mentoring	5	CAI	5	Seminars/Workshops	5
Supervised OJT	6	Lecture	6	Case Study	6
Seminars/Workshops	7	Seminars/Workshops	7	CAI	7
Team Teaching	8	Role Playing	8	Interactive Video	8
Programmed Instruction	9	Films/Video	9	Team Teaching	9
Interactive Video	10	Peer Tutoring	10	Peer Tutoring	10
Case Study	11			Comp.-Based Training	11
Comp.-Based Training	12				

Partial Source: Everett and Drapeau, 1994, Effective Instructional Methods in Business and Education. *The Delta Pi Epsilon Journal*. In press.

Table 3
Use of Training Delivery Systems by Students as Presented by the Mean Ranking
n=29

Survey No.	Method	Means	S.D.
7	Lecture	0.545	0.224
1	Case Study	0.255	0.267
2	Coaching/Mentoring	0.241	0.282
8	Peer Tutoring	0.228	0.271
10	Role Playing	0.207	0.275
12	Simulations	0.200	0.273
9	Programmed Instruction	0.186	0.233
13	Supervised OJT	0.152	0.281
11	Seminars/Workshops	0.131	0.247
6	Interactive Video	0.124	0.223
14	Team Teaching	0.124	0.242
4	Comp.-Based Training	0.110	0.197
5	Films/Video	0.103	0.182
3	CAI	0.09	0.187

Data in Table 3 show that only one method--lecture--was used by instructors in academia (receiving a mean ranking of 0.5). This traditional classroom method appears to be the chosen teaching method by instructors--according to these students. To find if there was a significant difference in students' perception of the use of the instructional methods, ANOVA tests were applied on the 14 rating scores as a repeatedly measured dependent variable. The results showed the F ratio appeared to be approaching significance (F [29,633]= 41.59, p>0.092). Three of the methods showed the F ratio not to be significant: lecture (F [34,828]= 0.552, p>.699); programmed instruction (F [51,448]= 1.818, p>.182); and case study (F [40,828]= 1.199, p>.334).

Table 4 presents the comparison of the rankings of the three groups regarding the use of the instructional methods. Of note is that the lecture method is ranked as used by all three groups; however, educators and students rank it as the only method used.

The panel of training experts appears to have a larger repertoire of instructional methods that they use to deliver subject matter. The methods that they designated as used include traditional classroom methods (lecture), and individualized instruction (CAI, films/video, and simulations). The other methods appear to be those that could be classified as on-the-job training (coaching/mentoring, peer tutoring, and seminars/workshops). Perhaps educators use and students have been exposed to the on-the-job methods but do not classify these methods as instructional devices. Also, it should be noted that the expert panel ranked simulations as the instructional method most effective and most often used.

Significance and Implications for the Study

A cursory examination of the research on teaching at the college and university level shows that a study of this type--where students' evaluations of particular teaching methods have been examined--has not been attempted. The researchers in this present study have a vested interest because of both their college teaching experience and business experience.

Although the results of this study involved a small sampling of students from a state-supported, regional university, the findings may begin to focus attention on how students learn best. Particular attention should be given to using a variety of instructional methods which offer subject matter content to diverse learners in the classroom.

Table 4
Ranking of Use of Training Methods by Expert Panel, Business Educators, and Students

Expert Panel n=61	Rank	Educators n=128	Rank	Students n=29	Rank
Simulations	1	Lecture	1	Lecture	1
Lecture	2				
Films/Video	3				
Peer Tutoring	4				
Seminars/ Workshops	5				
Coaching/ Mentoring	6				
CAI	7				

Partial Source: Everett and Drapeau, 1994, Effective Instructional Methods in Business and Education. *The Delta Pi Epsilon Journal*. In press.

The comparison of th hree groups--expert panel, business teacher-educators, and s .dents--offers a glimpse into how teachers/ trainers teach and students learn. It would appear that business teacher-educators need to broaden their repertoire of teaching methods; however, using other methods without a specific purpose in mind may not increase students' learning.

Suggestions for Further Research

The findings from this study may indicate that:

Additional studies should be undertaken in a variety of classrooms to determine definitively which methods are effective.

The literature review should be updated to include newer machine-based instructional techniques. Then, the findings may be more relevant to the evolving workplace.

More demographic data should be coll..cted from students that could shed light on the kinds of instruction which increase learning related to various learning styles. Other demographic data may include years of work experience, academic classification, major, and grade point average.

Teacher-educators should expose pre-service students to a variety of teaching methods, even arranging for students to learn and practice other methods of delivering instruction. This may require teachers and trainers to expand their "bag of tricks" in the classroom.

Summary

Using old methodologies to teach new technologies and skills will not prepare employees to compete for and maintain positions in business and industry. Students--whether in business or academia--have a vested interest in the training and education they are receiving and would be expected to have first-hand perceptions of the effectiveness of the training and education. Students in academia are asked at least yearly to evaluate the instructors of their classes, but are rarely asked to give opinions as to the effectiveness of instructional methods used to deliver subject matter. Sensitivity to student learning should necessitate offering subject matter in more than one mode.

Overriding all of these concerns for using a variety of teaching techniques is student motivation to learn. The researchers recognize that regardless of *how* students are taught, their learning in the classroom may have nothing to do with the kinds of instructional methods that are used. Other factors--such as reputation of the instructor, desire to excel, need for a college credential--may have more to do with student learning than the method of instruction. Regardless of students' reasons for being in the classroom, it still remains the responsibility of the instructor to make learning relevant and viable.

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The Teaching of Keyboarding Techniques in Grades K through 12 in the State of Missouri

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Abstract

A descriptive survey study was used to determine the status of the teaching of keyboarding techniques in Missouri schools. For data analysis and comparison purposes, school districts were categorized into three groups--small, medium, and large. Business teachers are primarily the instructors of keyboarding techniques regardless of school size or grade level. The majority of districts begin offering keyboarding courses at the ninth-grade level with a considerable number of small and large districts teaching beginning keyboarding techniques earlier. At the high school level, the length of beginning keyboarding courses is generally 36 weeks. Both typewriters and computers with a number of different word processing software packages are being used to teach keyboarding.

Introduction

Good keyboarding techniques are an important skill for today's students whether they use their keyboarding skills in school, in the workplace, or in their day-to-day activities. With high school graduation requirements increasing and computers being incorporated into schools at all levels, keyboarding is being introduced earlier in the curriculum, prior to high school in many Missouri schools. How and when keyboarding is being taught in schools is of major concern to business educators. At what grade level(s) is keyboarding being taught and who is teaching keyboarding are also of interest. Due to the rapid technological advances occurring in society and the infusion of computers and related technology into educational programs, there is a need to know when, where, and how keyboarding techniques are being taught. The need to ensure that good keyboarding techniques are developed by students and that keyboarding teachers are competent to teach keyboarding is critical to the business education profession.

Purpose of the Study

The purpose of the study was to determine the status of teaching keyboarding techniques in Missouri schools. Specifically, the study was designed to determine the grade levels in which keyboarding techniques are being taught. In addition, the study was designed to determine the types of certification held by instructors of keyboarding, the types of instructional equipment and computer software being used, the length of keyboarding courses being taught, the length of the instructional periods as well as the times of day when keyboarding is taught, and the major skills and techniques being taught.

Research Methodology

To obtain the necessary data, a questionnaire and cover letter explaining the research project were sent to all public school districts in the state of Missouri that had students in kindergarten through twelfth grade. The mailing list was obtained from the Business Education Division of the Missouri Department of Elementary and Secondary Education. The questionnaires were sent to the schools in September, 1993.

Each questionnaire was numbered and a master list was maintained. A follow-up postcard was sent three weeks later to those individuals who had not returned their questionnaires.

Four hundred thirty-five questionnaires were mailed to school districts in the state of Missouri. Of that number, 238 were returned (54.7%). To substantiate that the questionnaires returned were representative of the total state geographically, the number of returns from each of the Missouri Business Education Association districts were analyzed (Table 1). The researchers determined that a representative sample of questionnaires were received from each of the districts. The Southwest district had the highest rate of return and accounted for 11% of the returns.

Table 1
Geographical Distribution of Questionnaires Returned

District	No. Returned	Percent
Northeast	34	7.8%
Kansas City	11	2.5%
Southeast	32	7.4%
Southcentral	22	5.1%
Northwest	36	8.3%
St. Louis	16	3.7%
Southwest	48	11.0%
Central	39	8.9%
Total	238	54.7%

Three different categories of school districts, based on total student population, were used to analyze and compare the data. Small schools were defined as those school districts with five hundred students and below. Medium schools had a district student population of 501 students to 1000 students. Large schools had a district student population of 1001+ students. This categorization of school districts resulted in 126 of the schools that responded being in the small category, 50 in the medium category, and 62 in the large category.

Findings

Based on the data supplied in the returned questionnaires, numbers and percentages were calculated for each of the three different school district sizes.

Certification of Keyboarding Teachers

Regardless of the size of the school district, over 90% of beginning keyboarding instruction was taught by business education certificated teachers (Table 2). Intermediate keyboarding, regardless of the size of school, was taught at least 72.6% of the time by business education certificated teachers. Advanced keyboarding was taught 74.6% or more of the time by business education certificated teachers.

Table 2
Certification of Keyboarding Teachers

Course Type/Teacher Certification	Small		Medium		Large	
	No.	%	No.	%	No.	%
Beginning Keyboarding						
Business	116	92.0	46	92.0	56	90.3
Elementary	10	7.9	4	8.0	5	8.1
Intermediate Keyboarding						
Business	106	84.0	44	88.0	45	72.6
Advanced Keyboarding						
Business	94	74.6	40	80.0	49	79.0

Grade Levels Where Keyboarding Is Taught

Table 3 reveals that the majority of school districts start teaching beginning keyboarding at the ninth grade level. However, more small and large schools than medium schools tended to teach keyboarding below the seventh grade level.

Table 3
Grade Levels Where Keyboarding Is Taught

Grade Level	Small			Medium			Large		
	Begin.	Inter.	Adv.	Begin.	Inter.	Adv.	Begin.	Inter.	Adv.
K	0.8%						3.2%		
1	1.6%			4.0%			3.2%		
2	2.4%			2.0%			8.1%		
3	4.8%			4.0%			6.5%		
4	10.3%			4.0%			9.7%		
5	7.9%	1.6%		4.0%			14.5%		
6	9.5%	2.4%		6.0%			14.5%		
7	35.7%	4.0%	0.8%	22.0%			32.3%	3.2%	
8	42.9%	7.1%	0.8%	22.0%			40.3%	6.5%	
9	55.6%	48.4%	11.1%	64.0%	46.0%	4.0%	64.5%	46.8%	30.7%
10	61.9%	64.3%	30.9%	82.0%	70.0%	26.0%	82.3%	69.4%	48.4%
11	53.2%	66.7%	67.5%	70.0%	74.0%	62.0%	74.2%	72.6%	75.8%
12	49.2%	65.9%	72.2%	68.0%	74.0%	74.0%	74.2%	69.4%	82.3%

Types of Instructional Equipment Used

The instructional equipment used for teaching the three different levels of keyboarding was primarily IBM Wheelwriter and Selectric typewriters, IBM and IBM compatible computers, and Apple and Macintosh computers (Table 4). Both beginning and intermediate keyboarding were most often taught using IBM typewriters. However, advanced keyboarding was most often taught on IBM and IBM compatible computers.

Table 4
Keyboarding Instructional Equipment Being Used

Course Type/Equipment	Small		Medium		Large	
	No.	%	No.	%	No.	%
Beginning Keyboarding						
IBM Wheelwriters/Selectrics	50	39.7	26	52.0	27	43.6
Apple/Mac Computers	44	34.9	7	14.0	20	32.3
IBM/IBM Compatibles	37	29.4	13	26.0	17	25.8
Intermediate Keyboarding						
IBM Wheelwriters/Selectrics	44	34.9	21	42.0	23	37.1
Apple/Mac Computers	35	27.8	7	14.0	10	16.1
IBM/IBM Compatibles	41	32.5	17	34.0	20	32.3
Advanced Keyboarding						
IBM Wheelwriters/Selectrics	36	28.6	18	36.0	20	32.3
Apple/Mac Computers	47	37.3	12	24.0	12	19.3
IBM/IBM Compatibles	50	39.7	23	46.0	29	46.8

Note. Percentages may be greater than 100% because some schools use both typewriters and computers for keyboarding instruction.

Types of Software Used

Analysis of the data concerning the use of software packages revealed that a variety of software was being used to teach the beginning keyboarding regardless of school size. For intermediate keyboarding, the small schools typically used WordPerfect (21.4%), Appleworks (16.7%), and MicroSoft Works (15.1%). The medium schools and large schools used a wide range of word processing packages for intermediate keyboarding instruction. For advanced keyboarding, WordPerfect was the preferred software program in the medium (40%) and large (30.7%) schools. However, the small schools indicated a slight preference for Appleworks (21.4%) over WordPerfect (20.6%) for advanced keyboarding.

Length of Courses Taught

Table 5 depicts that the length of beginning keyboarding courses seemed to depend primarily on the grade levels of the students. At the high school level, the courses generally lasted 36 weeks regardless of the size of the high school. However, both medium and large schools more often offered 18-week keyboarding courses than did small schools.

The intermediate keyboarding course length appeared to be related to the size of the school. In the small and medium size schools, the intermediate keyboarding course usually lasted 36 weeks. In the large high schools, the intermediate course usually was offered for 18 weeks. There was an insufficient amount of data reported concerning intermediate keyboarding courses in elementary and middle schools to analyze.

The length of advanced keyboarding courses also seemed to be related to the size of the school. In the small and medium size schools, the advanced keyboarding course lasted 36 weeks. In the large high schools, the advanced course was offered for either 18 or 36 weeks. No data were provided relative to advanced keyboarding courses being offered in elementary and middle schools.

Table 5
Length of Keyboarding Courses

Course Type/Instructional Level	Length in Weeks	Small		Medium		Large	
		No.	%	No.	%	No.	%
Beginning Keyboarding							
Elementary School	3	1	0.8	1	6.0	1	1.6
	9	—	—	—	—	1	1.6
	18	—	—	1	2.0	—	—
	36	2	0.8	1	2.0	1	1.6
Middle School	6	1	0.8	0	0.0	3	4.8
	9	2	1.6	6	12.0	10	16.1
	18	1	0.8	8	16.0	9	14.5
	36	1	0.8	1	2.0	2	3.2
High School	9	27	21.4	3	6.0	5	8.1
	18	27	21.4	18	35.0	20	32.3
	36	44	34.9	20	40.0	22	35.5
Intermediate Keyboarding							
High School	9	4	3.2	1	2.0	2	3.2
	18	30	23.8	18	36.0	21	33.9
	36	56	44.4	23	46.0	14	22.6
Advanced Keyboarding							
High School	9	1	0.8	1	2.0	—	—
	18	15	11.9	13	26.0	21	33.9
	36	63	50.0	19	38.0	20	32.3

Length of Class Period and Time of Day

The length of the class period for beginning, intermediate, and advanced keyboarding courses at the high school level did not vary greatly between the three different school sizes. The average class length for all schools at the high school level was 50-55 minutes. At the middle school level, beginning keyboarding classes were 50-55 minutes in length regardless of the size of the school. However, at the elementary school level, the length of the class period significantly decreased to an average of about 30 minutes. This shorter instruction period agrees with the research-based knowledge that younger children have shorter attention spans.

The time of day that keyboarding instruction takes place was overwhelmingly during the school day. However, a few high schools did offer keyboarding instruction for their students before and after school.

Major Skills and Techniques Taught

The major skill being emphasized in the elementary beginning keyboarding curriculum is touch keyboarding regardless of the size of the school. However, as students become older, more skills are added to the beginning keyboarding curriculum with the major emphasis still being touch keyboarding. This curriculum emphasis on touch keyboarding was consistent for beginning keyboarding across all three categories of schools.

In the intermediate and advanced keyboarding courses, emphasis was placed on letters, reports, and tables of varying degrees of length and difficulty. Touch keyboarding remains an important component of the intermediate and advanced keyboarding curricula, but it did not receive the primary emphasis that it did in the beginning keyboarding curriculum.

Conclusions

Based on the findings of this study, the following conclusions are made relative to the status of keyboarding techniques in grades k through 12 in Missouri schools:

1. Business teachers are the primary instructors of keyboarding techniques regardless of school size and grade level.

2. The major instructional emphasis is touch keyboarding in the beginning keyboarding course regardless of the school size or grade level. In the intermediate and advanced courses, touch keyboarding, while still important, is not emphasized as much as the production of letters, reports, and tables.

3. The majority of school districts offer keyboarding courses beginning in the seventh grade. However, there is a tendency to teach beginning keyboarding techniques below the seventh grade level in both small and large schools.

4. The length of beginning keyboarding courses is typically 36 weeks at the high school level regardless of the size of school. However, both intermediate and large schools do tend to offer beginning keyboarding courses for 18 weeks.

5. Small and medium size schools offer intermediate and advanced keyboarding for 36 weeks, whereas large schools offer these courses for 18 weeks.

6. The typical class period length for keyboarding is 50 to 55 minutes for grades 7 - 12 regardless of the size of school. However, keyboarding courses offered in elementary schools generally average 30 minutes in length.

7. The equipment used primarily to teach keyboarding courses are IBM Wheelwriter and Selectric typewriters, Apple and Macintosh computers, and IBM and IBM compatible computers.

8. A variety of word processing software packages--Appleworks, MicroSoft Works, and WordPerfect--is being used to teach beginning keyboarding regardless of school size.

9. The primary word processing software package used in small schools to teach intermediate keyboarding courses is WordPerfect, whereas a variety of word processing software is used in medium and large schools.

10. For the advanced level of keyboarding, medium and large schools tend to use WordPerfect and small schools tend to use Appleworks or WordPerfect.

Travelers' Tales During Student Teaching: The Experience of Returning Women Business Education Students

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Abstract

Business teacher education attracts a large number of returning women students. The focus of this research was to gain an understanding of what it is like to be a returning woman student during the student teaching experience. The research question was approached using the qualitative research mode of hermeneutic phenomenology. Hermeneutics and phenomenology are two traditions that contribute to interpretive inquiry. This mode of research questions the lived experiences of the returning women student teacher. Their voices are reflected in their lives as student teachers, as university students, and as wives/ mothers. The voices of there unique experiences need to be heard to enhance the business education profession.

Introduction

Business education teachers need to be aware of the uniqueness of returning women students in business education. During the past few decades, college campuses have seen increasing numbers of women over the age of 25 returning to school. These women have life experiences that will be valuable to them as they enter the teaching classroom, and their experiences will challenge their students. As teachers of business education students, it is important to understand that women have learning styles that differ from men--which is the way most higher education instruction is administered. When properly challenged, most returning women business education students excel academically and excel as student teachers. Returning women may feel deficient because they are out of order according to society's standards. It is necessary for business educators to reexamine and question issues and structures in our public schools, homes, higher education settings, and society. Some questions educators may want to ask themselves include: What is it in the structure of our society that makes women feel they are "out of order" if they continue their education later in life? How do school personnel contribute to a women's feeling "out of order"? What is it about the way institutions organize and pursue knowledge that make returning women feel deficient? How do women perceive their detours to obtaining a college degree? How have their past and current experiences as students, adults, parents, and community members influenced their student teaching experience?

These question do not bring about readily available answers nor does this mode of inquiry seek quick answers. The methodology I chose to use comes from a philosophical grounding that of hermeneutic phenomenology. The methodology of hermeneutic phenomenology gave me the opportunity to question what the lived experience of the a returning woman business education student teacher might be like and continue the questioning.

Philosophical Framework and Methodology

Ultimately, through this research I wanted to gain a deeper understanding of what it is like to be a returning women business education student during the student teaching experience. I wanted to understand what her journey was like. The philosophy and methodology used to carry out this research was that of hermeneutic phenomenology. This is a qualitative mode of inquiry. Hermeneutics and phenomenology are two traditions that contribute to interpretative inquiry.

> Interpretive science has a research guiding interest that seeks to clarify, authenticate, uncover or bring to full human awareness, meaning structures as expressed by persons in their everyday life-world experiences. The inherent aim is understanding aspects of human cultural activity and experiences from the perspective of those living through the experience. (Hultgren, 1989, p. 40)

This mode of research does not try to insert people into categories. White-Hood (1989) speaks of this form of research as, "It was a returning to ways that call for sincere understanding, empathetic listening, meaningful language, and actuality (p. 7)." It attempts to go deeper by continually questioning the lived experience, in this case, of the returning women business education students during their student teaching experience.

Turning to the Phenomenon

Hermeneutic phenomenology places the researcher at the center of the research. My personal history and personal experiences are an essential component of this type of inquiry. The researcher questions why the topic is of importance to her/him. I questioned myself, "Why do I feel called to study returning women students especially during their student teaching experience?"

For many years I have been fascinated by the many mature women in my classroom. They come to school with great enthusiasm for school and learning. As student teachers the returning women students carry this enthusiasm for school and learning with them into their classrooms. However, they also come into my classroom with a multitude concerns and experiences that are unique to their age and stage in life.

Questioning Phenomenologically

To simply question a woman's life world is not enough. The researcher has to become part of her life world and her experiences. I started with the question of what is it like to be a returning woman student during the student teaching experience? Phenomenology asks: What is it like to have a certain experience (van Manen, 1990)? I had conversations with the women, which were taped and transcribed. Our conversations and the evolving text is what guided my further questioning. I would then take the written text and my interpretation and ask the participant if my interpretation was valid. Eventually themes emerged from our conversations.

Doing Phenomenological Research

Van Manen (1984) suggest that one begins the investigation by using personal experiences as a starting point. Then the researcher continues by obtaining experiential descriptions from others. The stories that the women brought to me were extremely helpful in understanding their experiences. Expressing personal stories is important in phenomenological research. Bateson in *Composing a Life* expresses her view of the importance of storytelling. "Storytelling is fundamental to the human search for meaning whether we tell tales of creation of the earth or our own early choices (p. 34)." Equally important to understanding the women's lived experience is the use journal writing.

There is no defined methodology for doing phenomenological research, however, van Manen (1987) does offer the following as essential elements:

1. Turning to the nature of the lived experience
2. Exploring the phenomenon using existential investigation
3. Phenomenological reflection: conducting thematic analysis
4. Phenomenological writing: attending to speaking of language, varying examples, writing and rewriting

Phenomenology

Phenomenology is the study of a lived experience. Phenomenological research brings about an awareness of different ways of thinking and acting--a search for new possibilities--that lead to a better situation for those who are affected by a course of action--in this case returning women business education student teachers. Van Manen (1984) states: "Phenomenological research is not a problem solving research; it does not offer solutions and general conclusions. Phenomenology addresses not problems but the questions that make problems intelligible as problems" (p. 15). We do not point to things rather they show themselves to us. "Phenomenology is a means of being led by the phenomenon through a way of access genuinely belonging to it" (Palmer, 1969, p. 128).

Hermeneutics

Hermeneutics is the study of interpretation and understanding, and particularly the study of interpretation and understanding as it relates to text. Hultgren (1989) states, "hermeneutical in general pertains to exposing hidden meaning, making the strange or alien familiar and comprehensible" (p. 42). Language is an important element in hermeneutics. If one wants to gain a deeper understanding of the life world of participants, one should listen to their language and how it is spoken. Consequently, understanding is not understanding of language, but rather through language (Hultgren, 1982). It is through language that a person's being appears.

Hermeneutic Phenomenology

Hermeneutics serves as a vehicle for carrying out the phenomenological process. Hermeneutics allows us to understand the experiences of others and their journey even better than they do (van Manen, 1990). Hermeneutics is "understanding aspects of human cultural activity and experience from the perspective of living through the experience" (Hultgren, 1989, p. 41). Phenomenology is the philosophy of understanding through lived experience. Hermeneutic phenomenology presumes that the meaning (truth) is hidden and must be brought to the surface through reflection (van Manen, 1990).

Initial Questions: Purpose of the Study

Why Study Returning Women Students?

During the past few decades, college campuses have seen increasing numbers of women over the age of 25 returning to school. The US Bureau of Census as far back as 1981 indicated that of the 65 percent of the 1.5 million adult students enrolled in American institutions of higher education are 35 years of age and older. However, the greatest increases are occurring for women ages 25-34 (Farmer & Fyans 1983). These women are sometimes single, but often they are married and have children, empty-nester, and some are displaced homemakers. The majority of them have had some college experience (Christian & Wilson, 1985). They are often working either full time or part time and tending to the majority of the household responsibilities.

Why Study Student Teachers?

Student teaching is an extremely important phase in becoming a teacher, and many student teachers form lasting impressions during the student teaching experience. Student teaching can

be a time of considerable stress for a student teacher. As Schwebel et al (1992) recognized,

> The student teacher's position is a demanding one: A novice, still a student, enters a new setting to use newly acquired skills, under the watchful eye of experienced professionals. This is a difficult position. Yet, most students meet the challenge successfully. (p. 4)

Everyday there is a new emotion, a new fear, a new anxiety, a new joy. It is the time to put all the theories they have learned into practice in their own classrooms. Fuller and Bown (1975) characterize the student teacher as being concerned with survival. They describe this as:

> These are concerns about one's adequacy and survival as a teacher, about class control, about being liked by pupils, about supervisors's opinions, about being observed, evaluated, praised, and failed. These are concerns about feelings, and seem to be evoked by one's status as a student. (p. 37)

As cooperating teachers, university/college supervisors, and those working in teacher education programs, it is important to recognize these concerns so that the student teacher is allowed to have the best possible student teaching experience. Ultimately, teachers are some of the most important individuals in our society.

Why Study Returning Women During Their Student Teaching Experience?

Returning women business education student teachers bring with them a host of business and personal experiences that will make their student teaching and eventually teaching experiences unique from the traditional aged student teacher. Returning women students go into the field of education for several reasons including wanting a change of career, teaching is compatible with family life, she always wanted to be a teacher, and the need to earn extra money to help support the family. For these and other reasons business education attracts a large population of returning women students.

There is also a need to view these returning women student teachers as beings, not as objects doing.

> Teaching, traditionally, has been viewed as doing rather than being. The doing is a reflection of the dominant technocratic rationality and knowledge base in teacher education which is exemplified in thing-like qualities (behavioral competencies from the field of educational psychology) that can be performed and then measured. The socialization process in becoming a teacher from such a view gives emphasis to the mastery of technical skills which tend to separate the act of teaching form the person who is doing the act (teaching). (Hultgren, 1987, p. 35)

Through reflection the women begin to see themselves as a being not just a person who enters the class and carries out the doing act of teaching.

What Is It Like to Go Back to School?

This is a new, different, or changed world the women are entering. Prior achievement does not seem to have any benefit, because concerns about rusty study skills and ability to keep up often take precedence (Macoby & Jacklin, 1974). Many institutions of higher education have encouraged returning women to take workshops dealing with study skills, note taking, and time management. Then there are the personal and internal struggles. A mother of five, after an absence of twenty-five years, returned to school to obtain a college degree, shares these personal statements from her graduation address.

> ...my thoughts go back to a fall day four years ago. My stomach churned. I felt terrified. Nothing I put on looked right. My skirt looked too dressy, my jeans too sloppy. I settled for a turtleneck shirt, sweater, and corduroy slacks. The drive to the university takes twenty minutes from my home, but I left an hour early, as I did not want to be late for my very first class.
>
> Arriving on campus, I walked toward Dana Hall, where I would take my first class--Psychology 110. My blue backpack was slung over one shoulder, as backpacks are supposed to be. Having five children, I was acutely aware that backpacks are always slung over one shoulder, not to ease or balance the load but rather to look "in" or cool. My concern was not whether or not I looked "in," but certainly did not want to look any more "out" than was absolutely necessary. Being invisible would have been ideal.
>
> I entered a large auditorium, seated myself in the front row, and waited. It had been twenty-five years since I had experienced any formal education. I felt joyous at the prospect of being an integral part of this university, but terrified that I could not survive academically.
>
> As students, trickled in, I thought of my own five children and how nice it would be to spend time with young people who did not have peanut butter and jelly on their hands, or for whose bills and antics I would not feel responsible. However, I recognized that my peers came to the university armed with recent quiz and test scores--SATs, APs, and Stanley Kaplan experiences. I had never taken an SAT or an AP, and my single experience with Stanley Kaplan was writing a check for my son to take a preparation course. (Quintillani Cited in Lewis, 1988, p. 11)

Developmentally, these women are at very different points in their life span than an 18-22 year old female student, and their

concerns and needs reflect differences. Some of the most difficult barriers include guilt, anxiety, lack of self-confidence and institutional policies (Wheaton & Robinson 1983). These barriers need to minimized before the returning women reaches the student teaching phase of her education.

Results: Themes of Returning Women Business Education Student Teachers

After long discussions, conversations, transcriptions, interpretation and reinterpretation several themes emerged. The following are excerpts from the text of the women involved in this study.

The women who were involved in this study all knew that they wanted to be teachers. They came upon this knowledge at different stages in their lives. Maggie reflects on her thoughts about becoming a teacher:

> Sometimes it seems as if I've been doing that for the past 23 years. Actually, it has been 25! From the moment that a fellow student threw the eraser at kindly Mrs. Smith I knew I wanted to become a teacher. What sparked my interest at that particular moment, I'm not sure. Perhaps a feeling that "I could do that better" or that teaching was a real challenge, or even maybe a feeling that I could somehow avenge the poor treatment of a nice lady. What ever the reason, the seed was planted and it continued to grow during the remainder of high school.
>
> I truly enjoyed the business/secretarial classes I attended in high school and college. I found them rewarding and interesting often making mental notes on ways to improve the methods of teaching. I often entertained different ways to teach typing that would eliminate the old...A-A, space; S-S, space routine that drilled the finger placement into our heads! I was positive I would find the ULTIMATE approach and achieve notoriety as a 'visionary' in my field. Unfortunately, life side-tracked my glorious plans and I decided to set out to see the world, get married and LIVE! I still had my plans, but at 20 years of age, I felt I could do it all.

Their stories have many similarities, but they are unique individuals and their lives, feelings and stories are all unique. The following are excerpts from their journey of returning.

> The most important reason I have for going back to school is the new profession I will learn after business college, and fifteen years as a secretary. I feel I have gone as far as I can or want to, in that field. The challenge is gone and I am ready to move on to new horizons. When my education is finished, I plan to teach business education. With the combination of my work experience and college education, I feel I can be an effective teacher.
>
> I always felt "inferior" because I had not completed my education.
>
> The following 20+ years I continuously heard the whisper of a future teacher in my ear. Having a family, and a career, made this course of study more difficult, however, it also demonstrated just how serious I was to achieve my goals. As I worked as a secretary and later as an administrative assistant, I realized that I was gaining valuable knowledge--I was living my subject area!!!. I now was gaining insight that could be passed on to students. Enter Baby One, Baby Two and Divorce!
>
> I worked in the government for twelve years. I had established myself there. Comfortable with my co-workers and familiar with my job, as an administrative assistant. I always like working in an office. I was always good at this, but I was not fulfilled as a person. It was work, home, work, home. I always liked helping people, showing them how to do things. I knew I could help someone in some way, this would be satisfying to me. Where I'm from that's what we are about, helping one another. By becoming a teacher, I can be an asset to the students.

As with all the emotions of student teaching, being older has its positive and negatives. Some of the positives of having life experiences will usually outweigh the negatives thoughts. Nevertheless, it can be heard in the comments about being older that the student teachers have mixed feelings. These are comments made by student teachers on the theme of being an older student teacher.

> I think because I am an older student, I have learned to play the game of getting along when I need to.
>
> Being an older student teacher is easier--because you are more motivated (you're paying the tuition bills and your pride won't let you fail). Harder--because (at least in my case) I have a family to contend with. When I'm studying I frequently get interrupted. Often you have to take care of important family business and I must set my studies aside (at least temporarily). However, as an older student, I usually do what I have to do to get the job done!
>
> The student teacher experience is probably different for us older students than it is for the traditional-aged student. I found myself thinking my teacher "had it easy," at times, I thought she was nuts for wanting to teach in today's society.
>
> The issues I seem to be concerned about are NOT those of my fellow student teachers. They are dealing with control problems, social issues, behavior problems. Per-

haps that's due to th ıreas the schools are in or is it that being older and hav ıg experienced kids and life. I am O.K. with that stuff, and can focus on the other things? The real important aspect of teaching -- how many pairs of hose do you run each morning? Is this dress appropriate? What is the appropriate behavior towards your supervisors (is it O.K. to be friendly and cheerful, and LIKE them)? Can I talk to my supervisor in class? What color of pens to use recording grades? How do you record grades on the computer? The day to day stuff that concerns me.

Schwebel et. al. (1992) have derived from an analysis of student teachers' logs four stages of student teaching. The themes of the returning women business education student teachers echoed their analysis. They do not conclude that all experiences will follow each stage exactly, or that each will be equally prominent. They do believe that a student teacher can expect to find at least elements of each stage during their student teaching.

Stage one, the early days. They can be overwhelming, especially because the student teacher tries to absorb so much information so quickly. Feeling overwhelmed and seeing the cooperating teacher functioning so well and handling everything in stride, she may feel awed. "Can I do it"? the student teacher may ask.

This is clearly a stage that the women went through. Mary comments on her questioning, "Can I do it?" "The most important aspect I need to learn about myself is 'can I do this'"? Another women shared her concerns:

> My greatest concern is not about needing new knowledge, it is about my ability to teach and influence students. It is a form of self-doubt that I hope will be removed after the completion of student teaching.

Stage two, becoming a member of the teaching team. The student teacher has been observing and working with the class. The student teacher can now see the class as individuals and at the same time see the class as a group. The cooperating teacher is now a living, breathing person who has positive and negative aspects to her/his teaching personality. The student teacher now begins to question the cooperating teacher and think of what she would do differently if it were her own class. She now feels like a member of the team not an outsider. The women submerged themselves into this stage very quickly. Sue relates how well a cooperative learning lesson went. "The kids laughed out loud and seemed to thoroughly enjoy themselves. It was a nice change of pace--for all of us." She saw the students as individuals as well as part of a whole classroom. Another example Sue relayed about the individual make up of students and the classroom:

> The kids were exited to see me (or so they said!). One young man walked me to class and said how excited he was that I was back and they didn't have to wait in the hallway. Some of the kids told me about their spring breaks and asked how I was feeling. I am gonna miss (most of) this class when I leave.

As adults they may not have been as in awe of their cooperating teachers as a traditional aged student teachers. The returning women student teachers all had respect for their cooperating teacher, however, they did not always agree with their classroom management. The following are some of the student teacher's comments:

> This was another weird week. I missed Monday (due to a death in the family). My cooperating teacher was very sympathetic and cooperative..okay, will the aliens that have overtaken her body please leave...just kidding. She's a very nice lady..we just have different teaching styles.

> Taking 10 points off a quiz doesn't seem stern enough to me, but this is NOT my real classroom.

> The cooperating teacher, treats them like they are little kids. She expects me to do the same. I treat them like young adults, which they are. She sometimes belittles them in front of the class. She also tells me that the majority are not very bright students. I believe if you show respect you will in turn get respect. It appears to me, at times, that the teacher tries to make the students look stupid.

> I don't like her way of grading papers. The work is either right or wrong. She gives the student's a check mark or an E. If the student's correct their paper they can get the E changed. I would give "real" grades such as an "A", "B", "C", "D", or if the paper was a total mess an "E".

Stage three, soloing as a teacher. It is now time to put the theory into practice. It is time to solo. The realities of teaching such as preparation, presentation, timing, and assisting several students at one time all merge together. This is often a time of frustration for student teachers. The returning women were frustrated with the time that was needed in preparation and classroom management. They were also frustrated in their inability to reach some of the more challenging students. This is where the "mothering" in their personalities came through. The following are examples of the women's experience during this stage.

> When do teachers ever get the time to learn anything new??? I've been back-peddling the entire time, with hardly a moment to catch my breath. I've found a new respect for the profession. There is never enough time to do anything, much less a 'new trick'.

> Students don't hang on your every word! Most of them didn't even look up! The ones who did make eye contact

must have seen the terror in my eyes! Yikes! WATCHING is so easy! SPEAKING is much more difficult.

What happens when a student does NOT want to be reached? When a student does not care about his/her grades? When they really aren't motivated to do anything at all? I have such a student in each of my classes. They really shoot to hell my altruistic beliefs. What does Kate do? Her best. There are still 29 other students in the class, and they need constant direction, too. It is disturbing to realize that it is in the best interest of the whole class to keep on going and let the one be. Sure, she tries to be encouraging and offer help outside of class, but the students really could care less. Should I view this as her failure/my failure??? Or, should I view this as the old saying, ""you can lead a horse to water, but you can't make it drink"??? I thought students really wanted to learn. I did. MY mistake. Some just don't care and are unmotivated. They came to school that way. I see my son Bob as one of these. I didn't fail as a parent, I just can't make him be interested in school I can urge him to make an effort, but I can't make him do it. The student is what the student is. We can only work with what we are given. How does that relate to my ideal of reaching each student, and helping them be successful in my class? I'm not sure. This is an issue I will struggle with my entire time. It's scary not to have an answer.

Stage four, feeling like a teacher. This is the feeling the returning women student teachers have all worked so hard to achieve. The student teacher settles down to a routine of teaching and instruction. She develops her own unique style of teaching. She enjoys having her own class. The returning women went through this stage with the following thoughts.

The cooperating teacher is out of the room most of the day taking care of other school business. I feel like its my class. I know I will have to give it up in a couple of weeks, this is the sad part. I've gotten used to all the students and they're comfortable with me. I realize that most good things must come to an end.

I must admit, I feel more like a "real" teacher when my cooperating teacher is gone (like last week) because then I am totally in charge and I know I can now to handle any situations that comes along.

Friday was a very long day. My cooperating teacher was out at a seminar and I had all the classes, plus I tried to help the substitute teacher that was next door filling in for Dr. Miller. The kids were wild...two kids refused to cooperated for the substitute next door so she called me over to assist. Wow, I was on a short-lived power trip!

Conclusions: What Is It Like to be a Returning Women Business Education Student Teacher?

The women in this study worked hard to go back to school, to stay in school, to maintain family relationships, and be good student teachers who will contribute to the profession of business education. Most went back to college with doubts and fears about their study skills. They all waited until it was easier on their family situation. All the women in this study began their journey of returning to school at a community college. The journey began at a community college because they felt more comfortable there. They were treated as individuals and felt more of a sense of caring and community at a small institution.

I initially started with many questions. This mode of research, hermeneutic phenomenology, does not leave the researcher with all the questions answered. The opposite is true. This is the circle of questioning. I wanted to understand what their experience as returning women student teachers was like. I continue to question structures and institutions in our society. I continue to question, how can institutions of higher education be more open to women's learning styles, needs, and previous experiences? How can I, as an educator, be open to the needs of the returning women that come into my classroom?

The returning women student teachers went through the stages of student teaching differently than the traditional aged student teachers. The early days of being overwhelmed lasted longer than for the traditional aged student teacher. This was due to her other personal and sometimes professional obligations. The returning women student teacher becomes a member of the team very quickly. This is attributed to her previous professional experiences as well as the fact that she has worked with many different types of individuals throughout her personal and professional life. The stage of soloing as a teacher was difficult. The women thought they needed to be perfect everyday. It took longer for them to get past this feeling than it did for the traditional aged student teacher. The last stage of feeling like a teacher is internalized very quickly for the returning women student teachers. The women realized very quickly that her personality style may be different from the cooperating teachers. They want to have their own identity in the classroom. As Carol states, "Teaching is all consuming. You really become it." The women were all sorry to see the student teaching experience end.

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Two Measurement Tools for Developing Leadership in Business Education

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Abstract

This study brings to culmination the development of two measurement tools which were designed to assess, diagnose, and predict the leadership effectiveness of vocational educators. The development of these two measurement tools, the *Leader Effectiveness Index* (*LEI*) and the *Leader Attributes Inventory* (*LAI*), began over six years ago and has been sponsored by the National Center for Research in Vocational Education. Both instruments have undergone multiple revisions as a result of repeated reliability and validity testing. The purpose of this study was to develop norms and standards for the *LEI* and *LAI*. Data were collected from a sample of 551 vocational educators occupying various leadership roles in 12 states deemed to have well developed secondary or post-secondary vocational education systems. Data were analyzed to determine how many unique norm groups should be created, and procedures were developed to provide feedback to those using the instruments. This feedback consists of a comparison to an appropriate norm group, as well as a criterion-based prediction of overall leadership effectiveness.

Need for the Study

A great deal of research about leadership has been conducted during the past four decades in a wide variety of disciplines and fields of practice. Philosophy, anthropology, psychology, sociology, political science, social psychology, management, and the military have all contributed to the body of literature. However, almost no research has been done to examine leadership in vocational education. Yet persons throughout the country who were consulted regarding the need for this research, as well as those who were interviewed specifically for the purpose of exploring strategies for leadership development, unanimously agreed that vocational education does not now have the number of effective leaders that are urgently needed. More importantly, they also agreed that a systematic effort to develop leaders is not being made. Furthermore, it was noted that leadership becomes especially critical to organizations in unstable situations -- situations in which change in the environment makes familiar ways of conducting the affairs of the organization unsatisfactory or irrelevant. Vocational education is currently in such an unstable situation. The field is faced with a series of changes that are rapidly and significantly altering the educational and economic environment in which it exists -- changes in the nature of work, changes in the ethnic/cultural composition of the student body, and increasing public demands upon the educational system. Vocational education must begin its own transformation if it is to remain a viable form of education in this new environment. Leaders are needed who can point to new directions and who can influence others to believe and to follow.

Purpose

The research described below is one phase of a larger research agenda which has been funded by the National Center for Research in Vocational Education, and began over six years ago with the overall purpose of increasing the number and quality of leaders prepared to meet present and future challenges facing the field of vocational education. The purpose of this phase of the project was to establish norms and standards for two instruments which were developed and validated in previous phases of the project. These two instruments are the *Leader Effectiveness Index* (*LEI*) (Moss, Lambrecht, Jensrud, & Finch, 1994) and the *Leader Attributes Inventory* (*LAI*) (Moss, Lambrecht, Jensrud, & Finch, 1994). The *LEI* is a measure of current leadership effectiveness as it is assessed by the subordinates of those who are already in leadership roles. The *LAI*, on the other hand, can be used to assess the leadership potential of those who are aspiring to positions of leadership, but may not currently occupy such positions. The *LAI* provides a diagnostic assessment of personal qualities which predispose effective leadership.

It is believed that the *LEI* and *LAI* are valuable measurement tools for developing leadership within business education. They can do this in at least two ways. First of all, they can be used to provide helpful feedback to individual business educators who are seeking to improve their leadership qualities. Secondly, they can be used by organizations and institutions seeking to create and evaluate leadership development programs in business education.

Establishing norms and standards for the *LEI* and *LAI*, is second in importance only to the identification of relevant criteria and attributes, and their consistent measurement. Without appropriate norms and standards, the most meaningful interpretation of scores is not possible. Persons want to know; "How are my ratings relative to the ratings of others in my norm group (or the norm group to which I aspire)?" Research has demonstrated (Moss, Jensrud, & Johansen, 1992) that knowledge about the strength of one's attributes, relative to an appropriate norm group, motivates participants of leadership development programs to set meaningful personal improvement goals and to strive to attain them. Standards are also very important in interpreting the practical value of scores on the *LEI* and *LAI*. They serve to interpret scores in terms of predicted levels of performance as a leader. Before discussing the process of establishing norms and standards for the *LEI* and *LAI*, a discussion of how these instruments were developed is provided.

Developing the *LEI* and the *LAI*

Both the *LEI* and *LAI* have undergone multiple revisions as a result of extensive reliability and validity testing. What follows is a synopsis of the development of these instruments. Lists of the items which comprise the current versions of these instruments are included in this discussion.

Developing the Leader Effectiveness Index

In order to develop effective leadership we must have some sort of criteria for evaluating leadership performance. Evaluating leadership performance is the purpose of the *LEI*. The *LEI* is a multi-rater instrument designed to measure leadership effectiveness as it is perceived by the subordinates and peers of vocational education leaders.

The first version of the *LEI* was developed in 1990 (Liang), and contained only four items. Each item was followed by a five-point response scale ranging from "extremely effective" to "not effective." The four items were synthesized from previous research on the tasks involved in effective leadership (Bass, 1981; Gardner, 1987; Posner & Kouzes, 1988; Yukl & Van Fleet, 1982).

In 1991, two more tasks were added to the *LEI* based on a validation study involving 78 vocational instructors from seven different states, each with a well developed system of vocational education (Moss, Finch & Johansen). Each of the 78 instructors participated in a semi-structured telephone interview. The instructors were asked to describe two incidents or events in which their administrators were particularly effective as leaders. The write-ups for the interviews were then analyzed to determine the categories of criteria that the instructors were implicitly using to identify effective leadership behavior. Based on chi-square analysis and the relative frequencies of these categories, the original four leadership tasks on the *LEI* were revised and two additional tasks were added to the instrument. The current version of the *LEI* (Moss, Lambrecht, Jensrud, & Finch, 1994) contains a seventh item designed to measure the respondent's overall assessment of a leader's performance. This item was added primarily for purposes of measuring the construct validity of the instrument. The seven items on the current version of the *LEI* are listed below:

1. Inspires a shared vision and establishes standards that help the organization achieve its next stage of development. For example, creates a sense of purpose, defines reality in the larger context, instills shared values and beliefs.

2. Fosters unity, collaboration, and ownership, and recognizes individual and team contributions. For example, creates a climate of community, builds morale, sets a positive tone, resolves disagreements.

3. Exercises power effectively and empowers others to act. For example, facilitates change, shares authority, nurtures the skills of group members.

4. Exerts influence outside of the organization in order to set the right context for the organization. For example, serves as a symbol for the group, secures resources, builds coalitions, acts as an advocate.

5. Establishes an environment conducive to learning. For example, provides intellectual stimulation, creates a supportive climate for learners, facilitates the professional development of staff.

6. Satisfies the job-related needs of members of the organization as individuals. For example, respects, trusts, and has confidence in members; adapts leadership style to the situation; creates a satisfying work environment.

7. Overall, how effective is the leadership performance of the person you are rating.

Each of the seven items on the *LEI* is followed by a seven-point response scale. Six of these responses range from "not effective" to "extremely effective." A seventh response, "not applicable," is also available for each item.

The construct validity and test-retest reliability of the current version of the *LEI* were assessed in a study involving two groups of graduate students (n=37, n=38) majoring in vocational education (Moss, Lambrecht, Jensrud, & Finch, 1994). The correlation coefficients between the average score of the first six items (the six broad tasks of leaders), and the seventh item (the overall

assessment of leadership performance) of the two samples were .91 and .92 respectively. The mean score of items 1 through 6 for both samples was 3.027, while the mean score of item 7 for both samples was 2.973. The difference between these means is only .054. Hence, with the correlation coefficients being so high, and the difference in means being so small, the six broad tasks of leadership measured by the *LEI* appear to be assessing a complete set of criteria for judging leadership effectiveness. To measure the test-retest reliability of the instrument, the *LEI* was administered twice to the two groups of graduate students with a one week interval between assessments. The test-retest correlation coefficients of the average rating on the first six items were .94 and .93. The test-retest correlation coefficients of item seven were .95 and .92. These coefficients demonstrate the excellent short-term stability of *LEI* scores.

The internal consistency and inter-rater reliability of the *LEI* were assessed using the same data which were used to establish norms and standards for the instrument. Three to five *LEI* assessments were collected from the subordinates and peers of 551 vocational education leaders (details about the sample are provided in the discussion on developing norms and standards). The internal consistency of the instrument was measured using Cronbach's Alpha. Based on the average of the three to five ratings for each member of the sample on the first six items of the *LEI*, the alpha for the instrument was .92. The inter-rater reliability was determined by measuring the degree of agreement between the three to five ratings for each member of the sample. The inter-rater reliability for the average rating on the first six items of the *LEI* was .86.

Developing the Leader Attributes Inventory

While it is a leader's behaviors that directly influence group performance, it is a leader's attributes -- the characteristics, knowledge, skills, and values possessed by the leader -- which prompt these behaviors. Within the constraints of a given situation, attributes -- acting as predispositions, disinhibitors, and abilities -- predispose individuals to behave in consistent ways. The purpose of the *LAI* is to provide a diagnostic assessment of the attributes which predispose effective leadership performance in vocational education.

The first version of the *LAI* was created by Moss in 1989. Based on an extensive review of literature and interviews with leadership theorists and trainers, a list of 35 leaders attributes was compiled. Each of these attributes was accompanied by a five-point scale ranging from "exceptionally high" to "exceptionally low." The validity and reliability of this instrument were first tested by Liang in 1990. A group of 282 post-secondary vocational educators was asked to evaluate the vocational educator whom they knew best using three different instruments: the *LAI*, the *LEI*, and an instrument developed by Bass and Avolio (1990) called the *Multifactor Leadership Questionnaire* (*MLQ*) which was also designed to assess leader attributes.

The construct validity of the *LAI* was assessed by calculating correlation coefficients between all 35 items of the *LAI* and each of the items of the *LEI*. All 35 leader attributes on the *LAI* were significantly related ($p < .001$) to each item on the *LEI*. Correlation coefficients ranged from .56 to .82, and averaged .70. These coefficients indicate a close relationship between leader attributes and leader performance, and are high enough to justify using the *LAI* to predict leader effectiveness.

The concurrent validity of the *LAI* was tested by comparing ratings on the *LAI* to ratings on the *MLQ*. Correlations between the 35 leader attributes and the four corresponding scales on the *MLQ* ranged from .50 to .81, and averaged .66. These coefficients indicate that the *LAI* and the *MLQ* measure the same basic constructs.

The test-retest reliability of the *LAI* was assessed by administering the instrument twice to a sub-sample of the 282 post-secondary vocational educators (n=36) with a two week interval between assessments. The test-retest correlation coefficients for the 35 items on the *LAI* ranged from .64 to .87, and averaged .78. According to Velsor and Leslie (1991), test-retest correlation coefficients should be at least .40, and a coefficient of .70 is considered "quite high." Using this standard, the coefficients for all the items were acceptable, and all but two or three coefficients were "quite high."

Later in 1990, the *LAI* was revised to include a total of 37 attributes. This version of the instrument was retested for validity and reliability using a sample of 38 part-time graduate and undergraduate students majoring in management (Moss, Johansen, and Preskill, 1991). All 38 members of the sample were employed in business and industry, and were asked to rate the leadership performance of their supervisors using both the *LAI* and the *LEI*. When the items on the *LAI* were correlated with the items on the *LEI*, the coefficients ranged from .40 to .88, and averaged .72. These high correlation coefficients resembled those found in the Liang study (1990), and gave further support to the construct validity of the instrument. The *LAI* was administered to the sample a second time, three weeks later. The test-retest correlation coefficients for the 37 items ranged from .53 to .89, and averaged .76. Once again, these coefficients demonstrate acceptable test-retest reliability on every item, and excellent test-retest reliability on all but two or three items.

The current version of the *LAI* (Moss, Lambrecht, Jensrud, & Finch, 1994) contains the same 37 attributes as the 1990 version, but the wording of four items was slightly revised to improve their clarity and precision. The response scale on the current version has six points ranging from "very undescriptive" to "very descriptive." The response scale was modified from five points to six in order to encourage non-neutral responses. The 37 items on the current version of the *LAI* are listed below:

1. Energetic with stamina -- Approaches tasks with great energy and works long hours when necessary.

2. Insightful -- Reflects on the relationship among events and grasps the meaning of complex issues quickly.

3. Adaptable, open to change -- Encourages and accepts suggestions and constructive criticism from coworkers, and is willing to consider modifying plans.

4. Visionary -- Looks to the future and creates new ways in which the organization can prosper.

5. Tolerant of ambiguity and complexity -- Comfortably handles vague and difficult situations where there is no simple answer or no prescribed method of proceeding.

6. Achievement-oriented -- Shows commitment to achieving goals and strives to keep improving performance.

7. Accountable -- Holds self answerable for work and willingly admits mistakes.

8. Initiating -- Frequently introduces new ideas.

9. Confident, accepting of self -- Appears secure about abilities and recognizes personal shortcomings.

10. Willing to accept responsibility -- Willingly assumes higher level duties and functions within the organization.

11. Persistent -- Continues to act on beliefs despite unexpected difficulties.

12. Enthusiastic, optimistic -- Thinks positively, approaches new tasks with excitement, and deals with challenges as opportunities.

13. Tolerant of frustration -- Acts calmly and patiently even when things don't go as planned.

14. Dependable, reliable -- Can be counted on to follow through to get the job done.

15. Courageous, risk-taker -- Willingly tries out new ideas in spite of possible loss or failure.

16. Even disposition -- Displays a sense of humor and a stable temperament even in stressful situations.

17. Committed to the common good -- Works to benefit the entire organization, not just self.

18. Personal integrity -- Speaks frankly and honestly and practices espoused values.

19. Intelligent with practical judgment -- Learns quickly, and knows how and when to apply knowledge.

20. Ethical -- Acts consistently with principles of fairness and right or good conduct that can stand the test of close public scrutiny.

21. Communication (listening, oral, written) -- Listens closely to people at work, and organizes and clearly presents information both orally and in writing.

22. Sensitivity, respect -- Shows genuine concern for the feelings of others and regard for them as individuals.

23. Motivating others -- Creates an environment in which people want to do their best.

24. Networking -- Develops cooperative relationships within and outside of the organization.

25. Planning -- In collaboration with others, develops tactics and strategies for achieving organizational objectives.

26. Delegating -- Appropriately and effectively assigns responsibility and authority.

27. Organizing -- Establishes effective and efficient procedures for getting work done in an orderly manner.

28. Team building -- Facilitates the development of cohesiveness and cooperation among the people at work.

29. Coaching -- Helps people develop knowledge and skills for their work assignments.

30. Conflict management -- Brings conflict into the open and uses it to arrive at constructive solutions.

31. Time management -- Schedules own work activities so that deadlines are met and work goals are accomplished in a timely manner.

32. Stress management -- Effectively deals with the tension of high pressure work situations.

33. Appropriate use of leadership styles -- Uses a variety of approaches to influence and lead others.

34. Ideological beliefs are appropriate to the group -- Models and demonstrates belief in the basic values of the organization.

35. Decision-making -- Makes timely decisions that are in the best interest of the organization by analyzing all available information, distilling key points, and drawing relevant conclusions.

36. Problem-solving -- Effectively identifies, analyzes, and resolves difficulties and uncertainties at work.

37. Information management -- Identifies, collects, organizes, and analyzes the essential information needed by the organization.

As with the *LEI*, the internal consistency and inter-rater reliability of the *LAI* were assessed using the same data which were used to establish norms and standards for the instruments. The internal consistency of the *LAI* was measured using Cronbach's Alpha. Using the average of the three to five ratings which were collected for each member of the sample (n=551), the alpha for the current version of the instrument was .98. The coefficients of inter-rater reliability for the 37 items of the *LAI* ranged from .75 to .84. The coefficient of inter-rater reliability was also calculated for the average of the 37 items. This coefficient was .91.

Establishing Norms and Standards for the *LEI* and *LAI*

Establishing norms and standards for the *LEI* and *LAI* enhances the meaningful interpretation of scores. Using norm data, raw scores on each item can be converted into percentile ranks. This makes it possible to identify precisely how well a person scored in comparison to a specific norm group. Standards, on the other hand, allow scores to be compared to a criterion measure of leader effectiveness.

Objectives

In order to fulfill the purposes of this study, two major objectives were employed. First of all, *LEI* and *LAI* data needed to be collected from a sample large enough to provide valid norms and standards. Secondly, *LEI* and *LAI* data needed to be collected from a sample broad enough to determine how many unique norm groups should be established.

Selecting the Sample

Vocational educators with three different leadership roles were used to form three purposive samples:

1. Chief Vocational Administrators (CVA's). These were the chief line administrators in (a) specialized public secondary vocational institutions, e.g., principals or directors; and (b) both specialized and comprehensive public post-secondary institutions, e.g., presidents, directors, or deans.

2. Vocational Department Heads (VDH's). These were administrators/managers of clusters of vocational programs, e.g., department heads or coordinators, in specialized public secondary vocational institutions, and both specialized and comprehensive public post-secondary institutions.

3. Vocational Teacher Leaders (VTL's). These were professionals in non-administrative/management positions, e.g., teachers or counselors, who were viewed by their chief administrator and/or department head as particularly influential among their peers. Examples are teachers who held elected positions in faculty associations, professional organizations, or unions.

With the advice of consultants, a group of 12 states was selected from which the three samples were drawn. These states were deemed to have well-developed secondary or post-secondary vocational systems with relatively high proportions of minority teachers and administrators. All together, these 12 states had a total of 329 chief vocational administrators.

All of the 329 chief vocational administrators (CVA's) in the 12 states were contacted by letter and then by telephone. The study and their role in it was explained, and their agreement to participate was solicited. A total of 311 of the CVA's agreed to take part. Whether or not the CVA's agreed to participate, they were also asked to nominate (a) three vocational department heads (VDH's) including -- if possible -- at least one member of a minority group and one female; and (b) up to three vocational teacher leaders (VTL's), giving consideration to minorities and females whenever possible.

Vocational department heads (VDH's) were then called and their participation in the study was solicited. Minority VDH's were contacted whenever they had been nominated by CVA's. When no minority member had been nominated, or if the nominee declined to take part in the study, an attempt was made to randomly select an equal number of men and women to contact for the VDH sample. A total of 289 VDH's consented to take part in the study. During the interviews, VDH's were asked to provide the names of up to three vocational teacher leaders, giving consideration to including minorities and females whenever possible.

Finally, vocational teacher leaders (VTL's) were called and invited to be a part of the study. Minority members who had been nominated by either a CVA or VDH at a given institution were called first. If no minority member had been nominated, or if they refused to participate, individuals who had been named by both the CVA and the VDH were called. In lieu of joint nominees, an attempt was then made to randomly telephone an equal number of men and women. A total of 305 VTL's agreed to participate in the study, bringing the combined total of CVA's, VDH's, and VTL's to 905.

Collecting the Data

Each of the 905 persons who consented to take part in the norming and standards study were asked to name five people who would assess their leadership using the *LEI* and *LAI* instruments. Directions stipulated that the *LEI* and *LAI* were to be given to a group of five people who: "(a) Report to you either directly or indirectly (or in the event that you do not have five subordinates, they may be peers); (b) know you well at work; and (c) who, as far as possible, included some females and persons from minority groups."

These directions called for raters to be persons who know the ratee well at work so that both the validity and reliability of ratings would be maximized. Edwards and Sproule (1985), for example, found that maximum inter-rater agreement among raters occurs as their knowledge about the ratee increases.

For several reasons, the directions allowed ratees to select their own raters. First, in contrast to a random selection of raters, it helped assure that the raters were persons who knew the ratee fairly well. Second, it guaranteed the credibility of the raters. This ensured the acceptability of the ratings by the ratee, and consequently increased the utility of the results for professional development purposes. Third, empirical research has shown that friendship does not bias evaluations (Edwards, 1990; Hollander, 1956; Waters & Waters, 1970; Wherry & Fryer, 1949).

The use of subordinates as raters whenever possible is consistent with the research team's conceptualization of leaders as individuals who, through such non-coercive means as persuasion and example, influence the behavior of group members. That is, leaders are individuals who have earned followers. Who knows more about an individual's leadership behavior and influence than those subordinates who are most impacted? A study by Edwards (1992) compared the ratings of subordinates with those of peers on 35 kinds of leadership behavior of over 5,000 managers. He found that subordinates' ratings were (a) more consistent than those of peers, and (b) somewhat more rigorous than peers on many of the leadership behaviors. However, subordinates and peers agreed far more than they disagreed about the strongest and weakest leadership behaviors of the managers.

Each of the 905 members of the sample was sent a packet of materials containing the following pieces: (a) a cover letter explaining what they were being asked to do; (b) a form to collect demographic information about them; (c) a form for them to name the five persons who were to complete the *LEI* and the *LAI* as their observer-raters; (d) five copies of the *LEI*; (e) five copies of the *LAI*; (f) five copies of a cover letter which was to be given to their five observer-raters; and (g) envelopes (return addressed and postage paid) for completed forms to be sent directly back to the researchers.

One follow-up was conducted with individuals who had agreed over the telephone to participate in the study, but who either had not returned completed forms containing demographic information, or had fewer than three observer-raters return completed *LEI* and *LAI* instruments. A minimum of three raters was considered essential for reliable ratings. Most of the follow-ups were conducted by telephone. The remainder were sent letter reminders.

All of the completed *LEI*'s and *LAI*'s were electronically screened for eligibility and then scored. To be eligible, the respondents had to report that they: (a) knew the participant/ratee "very well" or "fairly well" (not "casually" or "not at all"); and (b) were subordinates or peers (not superiors) of the ratee. The responses of ineligible raters were eliminated, and if this reduced the number of eligible raters to below three, the ratee was dropped from the sample.

The required minimum of three *LEI* and *LAI* instruments was received for 693 (77%) of the 905 individuals who agreed to participate in the study. After screening the completed instruments for eligibility, 551 (61%) of the 905 individuals who agreed to participate remained in the final sample. The final sample consisted of: 220 Chief Vocational Administrators, 168 Vocational Department Heads, and 163 Vocational Teacher Leaders.

Establishing the Norm Groups

With ratings on the *LEI* and *LAI* collected from three to five eligible observers for each of the 551 ratees in the three sample groups, the first stage of data analysis was to determine whether two or more of the three sample groups could be combined to form norm groups. More precisely, were the observer-ratings for the three samples sufficiently different to warrant establishing three separate norm groups?

The data for the *LAI* were analyzed using two criteria. The first criterion was to perform multiple *t* tests at the .05 level on each of the 37 items of the *LAI*, as well as the average of the 37 items, to look for any significant differences between sample groups on any of the items. The second criterion was to confirm the results of the *t* tests by examining the sets of ratings for perceivable, reasonable differences among the three samples.

The Chief Vocational Administrators and the Vocational Department Heads did not differ significantly on any of the 37 items, but the Vocational Teacher Leaders scored significantly higher than each of the other two sample groups on two of the attributes. Furthermore, although significant differences were found on only two items, the Vocational Teacher Leaders scored higher, albeit not significantly, than the other two sample groups on 25 other items.

Given the results of the *t* tests and the confirming evidence revealed by inspecting the data, it was decided that two norm groups should be formed: (a) a vocational teacher leader group (n=163); and (b) a vocational administrator group consisting of the chief vocational administrators and the vocational department heads (n=388). The latter two samples were combined because their average ratings were almost identical, and because it made logical sense to create one norm group of formal, managerial leaders to contrast with the group of informal, non-managerial teacher leaders.

One possible explanation for the high scores of the Vocational Teacher Leaders is that they had gained their roles as leaders without the aid of administrative positions. Unlike chief vocational administrators and vocational department heads, their leadership roles were not an automatic result of their positions. Rather, their leadership roles had, for the most part, been voluntarily conferred upon them by their peers and subordinates.

Data from the two norm groups -- vocational teacher leaders and vocational administrators -- were examined for gender differences. Once again multiple *t* tests were used to check for significant differences. No significant differences were found at the .05 level.

Although attempts were made to secure participation in the study from as many minority group members as possible, only 40 minority group members became part of the final sample. Given this small number, and the fact that a number of ethnic groups were represented among the 40 persons, no attempt was made to test for norm group differences based upon minority group membership.

The data from the *LEI* were analyzed in a similar fashion, but rather than performing multiple *t* tests on the individual items of the instrument, the first six items of the *LEI* were averaged and the resulting means were compared using a one-way ANOVA (the average of the first six items was considered to be the best estimate of the ratee's leadership performance). No significant differences between sample groups were found at the .05 level. Based upon the results of the one-way ANOVA and careful inspection of the data, it was determined that the three sample groups should be combined into a single norm group.

Data from the combined norm group were examined for gender differences by performing a *t* test on the average ratings of the females (n=248) and the average ratings of the males (n=303). The average ratings of the females were found to be significantly higher ($p<.01$) than the average ratings of the males. One possible explanation for this difference is that it is typically more difficult for women than men to attain leadership positions, so those who do are likely to be a very select group.

Although it is clear that gender differences do exist, it was concluded that it would not be very helpful to create separate norm groups for males and females. There seems to be little practical value in women comparing themselves with other women, or men with other men. It is more useful and realistic for individuals to compare themselves with people serving in similar leadership capacities.

Developing Standards for the LAI

In addition to knowing the relative standing of one's leader attributes in comparison to an appropriate norm group, it is also valuable to be able to translate norm-based attribute scores into a criterion-based measure of leader effectiveness. This type of information is available through the development of standards. These standards are especially helpful for those who are aspiring to leadership roles, but do not currently occupy such positions. Through the use of criterion-based standards, individuals can use their *LAI* scores to predict how effective they would be if they were in leadership roles.

To develop these standards, the *LAI* scores for the 551 subjects in the norming study were correlated with their *LEI* scores. Scores on the first six items of the *LEI* were averaged (the average of the first six items was considered to be the best estimate of the ratee's leadership performance). This average was then converted to a normalized *t* score. The normalized *t* scores from the *LEI* were then correlated with the normalized *t* scores for the average of all 37 leader attributes on the *LAI*.

Two regression equations were calculated to predict leadership effectiveness from *LAI* scores, one for each of the two *LAI* norm groups. The regression equation for the Vocational Administrator norm group is: $Y=7.49+.85X$, where Y is predicted leadership effectiveness as a normalized *t* score, and X is the average of all 37 attributes on the *LAI*. The regression equation for the Vocational Teacher Leader norm group is: $Y=10.61+.79X$. The standard error for the two regression equations are 5.3 and 6.2 respectively. In practical terms, this means that in at least 68% of the cases, the actual *LEI* score would be within plus or minus one standard error of the predicted score.

The predicted normalized *t* scores on the *LEI* can be compared to the criterion measure of leadership effectiveness used on the *LEI* instrument. This measure is a six point scale ranging from "not effective" to "very effective." Hence, using attribute scores from the *LAI*, individuals can predict, with reasonable accuracy, their leadership effectiveness on a continuum ranging from "not effective" to "very effective" even though they do not currently occupy leadership roles.

Feedback Reports

The final task of this study was to prepare and distribute feedback reports to the 551 subjects included in the final sample. These feedback reports included three graphs showing: (a) the ratee's average raw scores (from the three to five raters) for each item on the *LAI*, including a graphic depiction of a one-standard-error range around this average; (b) the ratee's average scores (from the three to five raters) for each item on the *LAI* compared with the appropriate norm group expressed as both a percentile rank and normalized *t* score, also including a one-standard-error range around the average; and (c) a predicted *LEI* score based on the overall average of all items on the *LAI* expressed as both normalized *t* score (once again including a one-standard-error range around the average), and a criterion measure of leadership effectiveness on a six-point scale ranging from "not effective" to "very effective."

Conclusions

Now that norms and standards have been established for the *LEI* and *LAI*, these instruments can be fully utilized to develop tomorrow's business education leaders. They can help fulfill this purpose in at least two majors ways. First of all, these instruments can be used assess, diagnose, and predict the leadership effectiveness of *individuals* occupying, or aspiring to occupy, leadership roles in business education. This can be done at a given point in time, but the instruments could also be used to measure change over a period of time. Secondly, the *LEI* and

LAI can be used to assist in the creation and evaluation of leadership development *programs* for business education. They assist in the creation of leadership programs by providing a conceptual base for the curriculum. They assist in the evaluation of such programs by providing relevant pretest/post-test data. Prior research has demonstrated that although some leader attributes may be quite resistant to improvement, many can be increased by a reasonable amount of planned educational experiences (Bass, 1981; Lester, 1981; Manz & Sims, 1986; Yammarino & Bass, 1988; Yukl, 1981). The objective of leadership development activities should, therefore, be to improve those leader attributes that prove to be susceptible to change by educational interventions. Those attributes that prove to be resistant to change should provide a basis for selection of leaders. Used in these two ways, the *LEI* and *LAI* serve to increase the likelihood that business educators will perceive opportunities to behave as leaders, grasp those opportunities, and succeed as leaders in a wide variety of situations and professional roles.

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PART II
RESEARCH TRAINING PAPERS

Conducting Qualitative Research in China

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Abstract

China has become increasingly important in the international arena. "Things Chinese" now touch us in the West almost daily. Yet, incredibly, few significant research projects are being conducted in and about that country. American researchers may have been discouraged by the language and cultural barriers. The major deterrents, however, perhaps lie in selecting appropriate methodologies. From personal research experiences in China since 1978, the author has found that traditional Western scientific methods tend to threaten the delicate fabric of Chines modes and manners. Suggestions are made to facilitate the qualitative research process in China without compromising the American spirit of "scientific inquiry."

Introduction

China has become increasingly influential on the global scene since it lifted its bamboo curtain, following the Nixon and Kissinger demarche of 1971, and took the first steps toward economic and trade reform in 1978. Subsequently, China has moved into the position of a major player in the international trade arena. Many economists have come to agree that China is likely to continue to be the world's fastest growing economy and may hold key to world prosperity in the 21st Century. But how much do we understand about what has become the world's largest market? What is our true understanding of the world's oldest and most populous country? To what extent can we comprehend the recent changes in the lives of its people?

We may read about the Chinese impact in the newspapers daily, watching its progress unfold over the years, and have even experience many things Chinese touching us here in the West. However, despite these developments, very little in-depth research has been conducted to shed special light and provide significant insights for us in the West to understand that country fully. American researchers may have been discouraged from conducting research in China due to the language and cultural barriers, but the major deterrents seem to be the difficulties in the selection of an appropriate research methodology for unfamiliar territory. As Drs. Bickel and Kriebel outlined in their article "Quantitative Data Deficiencies and Qualitative Research," the underlying irony of adapting technical quantitative research methods in the developing nation setting are the unavoidable problems of "threats to data quality." These kinds of threats could very well dissuade researchers from undertaking complex, large scale projects in countries such as China.

My own research experiences in China since 1978 have been that the traditional Western scientific methods tend to threaten the delicate fabric of Chinese modes and manners. Even with the tremendous progress and openness towards the outside world in the last decade, the Chinese can still not comprehend specialists such as sociologists, psychologists, or other experts in charge of separate pieces of the social fabric. In China, communication is the right of ordinary people.

In almost all interactions, the Chinese automatically start a friendly relationship first and do business later, while in the West, it seems that it is almost always "business first"; friendships may, or may not, occur later. Furthermore, the average Chinese who are not academicians do not have the Western concept of "scientific inquiry." It is certain that they would not answer a question for "scientific reasons" or respond to a set of conventional Western research methods. If researchers posed as "scientists," there might be barriers because the subjects would not understand what to make of them. Especially when conducting social and psychological studies, a researcher should be prepared to share his or her "inner self" in exchange for similar revelations from subjects. Personal exposure has to be mutual in Chinese society.

Therefore, in the selection of objectives and appropriate method, from personal experience it appears that quantitative methods still do not work well in conducting research in China. Within the framework of the qualitative method, interviews and observations could be selected as the basic research procedures. In determining the sampling frame, making a judgment based on a sampling frame is the risk researchers must take in any setting. However, researchers should consider time requirements, budget, and the magnitude of the consequences of drawing incorrect conclusions before arriving in China. The key considerations in developing guided questions: should also include the method of implementation. A methodology using telephone or mail would not be practical in China. Reasons for this will be mentioned later. There are advantages and disadvantages to both open-ended and closed-ended question methods. Generally, avoid questions which will tend to intimidate respondents. Be aware that the average Chinese has the tendency to please and to be agreeable, regardless of what he or she actually thinks. Open-ended questions may actually help to detect these kinds of phenomena. And, be prepared to exchange information about one's self, since the Chinese tend to make friendships first, conduct

business later. In the Chinese mind, it is only befitting that researchers have to offer their feelings and experiences to the subject in return.

For academicians or researchers who are interested in launching projects in China, the following suggestions may serve as effectual means.

Preparation

The major general criterion is: before leaving home, be prepared to do your homework. First and foremost, keep an open mind. There is a tendency for American researchers to judge things by our own standards, in our own comfort zone. While it is imperative to observe others with an open mind, researchers should also ponder their American habits, styles, and their own behavior in dealing with things foreign generally and the Chinese in particular.

Perform informational research first. There are a wealth of publications available now on China to provide necessary background and resource information. For example, if the research requires personal travel, reading *China Briefing Kit*, published by the National Committee on U.S.-China Relations, will be most helpful. *The People's Republic of China: A Basic Handbook*, compiled by Richard Bush and James Townsend, provides useful facts and figures. *Encyclopedia of China Today*, edited by Frederic M. Kaplan and Julian M. Sabin contains useful reference materials.

Research the historical, social and political environment. There are many ways to obtain a thorough understanding of these subjects, but the most highly recommended text for a classic/cultural overview is *The United States and China* by John K. Fairbank, published by Harvard University Press. For a better understanding of the political and social complexities, many have recommended reading *Alive in the Bitter Sea* by Fox Butterfield and *China and the West* by Jerome Chen.

Research current trends and changing values in recent years. Many have found *The Asian Wall Street Journal*, *China Daily*, *China Market Intelligence* and the short stories in *Chinese Literature*, published in China, to shed light on the current status and changes in China. Whether one obtains current information through publications or other means, it is necessary to possess such insights into contacts with the Peoples' Republic of China.

Understand cultural differences, past and present, before conducting studies. After having mastered all the publications and literature available for study, it also pays to converse with people who have been to China and who have been at work in China in the recent past. There are several organizations in the U.S. which have kept current and can point out crucial differences betweem past and present. These include the Asia Society's China Council in Washington, D.C., and the National Committee on U.S.-China Relations in New York, as well as the U.S. Commerce Department itself.

Accept the differences in basic concept and attitudes. With all good intentions and purposes, sometimes it is difficult for Americans to accept things counter to our own basic tenets. The reflections of Douglas Murray in *Face to Face: American and Chinese Interactions* are worth reading. Victor Li, in *Law Without Lawyers*, explians the contrasting concepts of social attitude. While Americans allow freedom even to the point of watching each other fall off a cliff, the Chinese emphasize restraint and prevention and come to expect support and protection--which the Americans resent.

Learn about myths and facts. One example that comes to mind is that many believe the American personality is "action oriented" while the Chinese are more subdued. In reality, there are as many Chinese who have freewheeling, resourceful personalities as there are Americans who are simple, virtuous, disciplined and purposeful.

With all of the homework under one's belt, one must learn not to stereotype individuals and react to them with preconceived notions. It may sometimes be difficult to separate the myth from facts, and to recognize each individual's different qualities rather than simply seeing a representative of another culture.

Specific Requirements

Now that the researchers have made proper preparations and obtained enough knowledge to begin conducting studies in China, they will understandably be confronted with logistical questions arising solely from the prospect of being in China.

Before choosing research subjects and determining research strategies, check into the local legal requirements and restrictions, noting especially that Chinese law is different in concept from Western law. Intellectual property rights and contracts are not popular practice yet; do not assume before taking action.

Work out technological needs. In particular, do not assume China's patterns of communications are like our own. China has well developed telegraph services. Telephone, fax and computers are readily accessible in metropolitan cities but are not available in rural areas. Sometimes, even though modern communications are available for foreigners' use, the cost is exorbitant, so make sure costs are within any budgetary constraints before jumping into any arrangement. In some hotels, a charge of nine dollars per minute for phone calls to the U.S. is be the norm.

Arrange necessary transportation: Transportation services are still rudimentary. Highways are poorly surfaced; railways are efficient but always crowded. To get from point A to point B requires plenty of advance planning. Even traveling locally by taxi requires some advance bookings.

Learn where to find assistance if needed. Depending on the type of research being conducted, in some cases consultants or interpreters may be helpful and expedite the research process. However, the term "consultant" is used differently in China than in the U.S. Most Chinese consulting companies are not teams of independent experts: they exist to implement government policies. Finding a good interpreter also requires diligent pursuit. A good interpreter is more than a translator of words. He/she must be bilingual and bicultural in addition to being knowledgeable about the subject matter of the research.

Be aware of the language barrier and translation problems. It is true that the Chinese language uses double negatives. "Yes" also means "no" or "maybe." Not only are there no expressions such as "Terrific!" "Fantastic!" "Wonderful!" and the like, but Chinese frequently describe situations through understatement. A denial may take the form, "Maybe the timing isn't right; shall we wait for the appropriate time?" There are also many political labels and terms which are difficult to translate. Misunderstandings related to language could greatly impede the outcome of the research study.

Be alert to others' mannerisms, gestures and expressions. Quite often, the body languages of the researcher and a subject can mislead both parties and yield unintentional messages or shades of meaning. In order to get the true meaning, it is important to clarify by repeating questions or offering examples.

Adapt your style to that of the subjects. If a subject appears to be direct and frank in their answers, the researcher should continue to be the same. If the subject shows hesitation and is not straightforward, do not be overbearing. Adjust yourself to be more understanding and considerate. Sometimes it is helpful to start a conversation to show one's knowledgeability about the subject's culture and lifestyle.

Observations and Interactions

Just as there is no such type as "the American mind," there are no exact guidelines to the Chinese mentality. However, historically there are some notable traits. Throughout the centuries, ethnocentrism has continued to dominate Chinese thinking. The Chinese character for "China" means "Middle Kingdom"; Chinese consider themselves the center of the world. Although on the surface many subjects may exhibit humility, and the younger generation adore things Western, one must avoid being arrogant in all interactions.

Relationships and loyalty are also extremely important. Relationship--"Quanxi"--means everything to the Chinese and loyalty comes with it in every action. The Chinese have an old saying: "Once a friend, always a friend." Yet, for the Chinese, one important aspect of friendship is mutual benefit. Business can only be successful if mutual interests have been served.

Do not expect the Chinese to revise their elastic sense of time and process just because we Americans have entered their country. Taking two hours for lunchtime and napping is common practice. Even in large metropolitan cities, it is still common practice for workers to "take their time" in every endeavor.

Be aware of differing perspectives on ritual. In the West, we often view rituals as wastes of time. In China, rituals observed since the Confucian era are still carried on today--although modern China may use them as a way of maintaining control.

Finally, be aware of the contrast between a scientific view and a systems view. While Americans emphasize the scientific approach, the Chinese tend to have a systems view towards life. They see themselves as part of a larger whole. Instead of linear thinking in a context of cause and effect, as in the West, the Chinese look for patterns and relationships for the answers.
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Conducting Qualitative Research in Organizations

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Abstract

Qualitative research includes gathering information from touring organizations, whereby the investigator conducts interviews and observations about people, purposes, and procedural systems. Methodology utilizes camera and videocamera, recorder and notepad to collect raw impressions. Accompanying quantitative methodology includes, among other techniques, structured instruments.

Accessing Internet and other data banks via Email produces related literature. Computer databases for recording data comparable to and in contrast to data gathered from observations and the literature also produces a bibliography. Together with information from the reality interviews, the researcher produces theories and examples to share in classes and in articles, books, and scholarly presentations.

Why Do People Conduct Research?

Research can be exciting, fun, fascinating. Imagine yourself as a PI--private investigator--running down clues to a mystery. Following is a brief list of some of the mysteries people seek to solve, the questions they want answered and why.

> Marketers conduct taste tests with consumers of new food items before putting them on the market.

> Pollsters conduct citizen surveys of past and proposed government policies to test acceptance.

> Partners provide customers with unshelled peanuts, urging the tossing of shells on the floor; at day's end, these entrepreneurs follow the shell trail to the counters that got the most play as evidenced by the most shells.

> Medical scientists conduct experiments in search of cures for cancer, AIDS, and many other maladies.

> A candidate for student body president gives out pencils with her name and slogan to get classmates to fill out a survey form telling her what they want her government to do.

> Engineers seek solutions to convert wartime machines to peacetime uses for corporations, households, people.

> A curator flies around the globe to obscure sites in search of clues leading to a rare artifact he wishes to acquire for his musuem and the visitors who will appreciate this bit of antiquity.

> A single parent collects data from print ads and word of mouth about the dependability of daycare centers.

> Police officers and prosecuting attorneys collect evidence they hope will convince a jury to convict their suspected villain, while the defense team searches for data that will prove just the opposite.

> KGB and CIA members collect and interpret data about the secret operations of other countries as part of their own countries' total defense program.

> Archeologists participate in digs to uncover artifacts that would describe how earlier people lived, worked, governed.

> Security and systems personnel develop fool-proof software, while industrial espionage experts seek to circumvent such precautions. Meanwhile, football coaches send out their representatives to spy on competing teams.

> A film group travels to exotic locales in search of realistic background for a TV script.

> A biographer reads trial testimony and interviews family members, friends, neighbors, coworkers, and anybody else who might provide insights about the perpetrator of a violent murder as background for a true-crime story.

> Some assistant professors, eager to publish (or present) and thus avoid perishing, conduct lots of silly studies with little benefit to the profession. They seek the security of tenure and the pleasure of promotions but may lack self-actualized motivations until perhaps later in their careers. Others of course are inspired and energized from Day One!

> Business educators, curious about the reality of the work place in comparison with trends (fads and fashions) reported in the literature, conduct observations and interviews in organizations that include both the private and the public

sectors. They conduct research on topics of software and systems, on people and processes, on productivity and profits. They use any number of qualitative and quantitative methods, often some of each. They conduct research in organizations, which includes schools. Teacher educators are often in schools.

The Research Design

Guidelines or reminders are the same as in journalism. The five Ws and the H stand for What, Why, Who, Where, When, and How. These subtopics will be explored here.

The WHAT or Purpose

Each investigation has a purpose. Although each study's purpose should be narrowly defined, having a few broad but significant purposes for one's life work inspires and energizes researchers.

In most studies conducted by this investigator in non-educational settings, specifically in businesses and government, the purpose is often directed to collecting data covering KASH (see Appendix A). What K-Knowledge, A-Attitudes, S-Skills, and H-Habits are employers looking for in the people they would hire and what KASH are needed by entrepreneurs who seek to succeed?

One example is an analysis of help-wanted ads in the classified section of metropolitan newspapers, which may be conducted as a quantitative research study. Adding data from telephone or face-to-face interviews with HRD personnel and entrepreneurs makes the study qualitative as well.

Findings from these type of studies should contribute to modifying and updating curricula. Advising students and offering career counseling are two other benefits.

In schools, this researcher often seeks to solve the mystery of identifying good to excellent teaching in terms of students' positive responses (based on nonverbal and paralanguage as well as oral reactions). Criteria comes from the WISH theory. WISH stands for W-Workplace, workers, work owners; I-Individuals wherever we are and whatever we are doing; H-Home setting, familial relationships and household/economic management; and S-Society, referring to the larger society, from the neighborhood to corporations and governments both large and small (see also Appendix A).

For example, what analogies applicable to WISH settings can be collected to use in classroom teaching and in writing and presenting? Findings from these type of studies should produce a data base of illustrations for improving lectures via analogy learning, which can also be used in student advising and career counseling, and in articles, books, papers and presentations.

The WHY or Reason

Researchers have many reasons for conducting research, as noted in the introduction of this paper. Energized researchers know why they are conducting investigations and seldom if ever worry about perishing!

The WHY also refers to how the findings will be used, such as in program and curricula modifications, career counseling, student advising, and so on. However, a lot of qualitative research is conducted as background for other projects, such as to bring realism into the classroom via WISH analogies and into one's writing. This writer interviewed over 250 entrepreneurs while conducting observations in their firms as background for the four books that resulted on this topic (see reference titles). A half-dozen other textbooks, designed for computer and office systems classes, were based on dozens of other observations and hundreds of individual interviews.

With experience comes shortcuts in observation methodology. Informal qualitative research can be based on less formal methods, once the investigator is experienced in conducting observations and interviews. The reason or proposed use often dictates the type of decision, whether formal or informal.

Instructors of office management might, for example, want to verify the accuracy of textbook and instructional topics with the reality. Observations of this nature parallel the instructional plan and/or the textbook topics (see more ideas under "The HOW").

The WHO

The WHO refers to the population to be sampled, including groups of people affected. Thus students are affected by the teaching of teachers; customers are affected by the marketing strategies and consumer policies of businesses; and employees are affected by the personnel policies of their firms.

In schools, the WHO might be students, teachers, both, or any related group such as administrators and parents, staff and public. In other organizations, the WHO might be owners, workers, customers, or any combination of these groups.

The WHERE

Organizations including businesses, industries, and government and other nonprofit organizations are categorized by the U.S. government under the Standard Industrial Classifications (SICs). Ensure that a variety of industries are included when identifying workplace populations. (Examples from the SICs appear in Appendix B.)

For educational research, the WHERE could be schools and/or homes. For behaviorial research, think mall or street, school

campus or employee lounge, with random selections of consumers, passers-by, students, workers and entrepreneurs. The introduction of this paper lists a variety of settings beyond the SIC workplaces that might be selected WHEREin to conduct research.

The WHEN

Time and place are frequently dictated by the nature of the study. Students in school and office clerks in the workplace must be observed in their place setting but they could be interviewed after school or work, provided both the population and the investigator are available. For studies designed to affect a specific transient population, the WHEN may be significant.

Students participating in a new "Applied Communications" program must be observed and/or interviewed before program completion, perhaps during a pre/post sequence. The pre/post interview design can also be used to assess employee reactions to their company's physical relocation plan and in other before-and-after situations.

The HOW

The How refers to the project design or procedures (see the typical Chapter III in many dissertations). The construction of data-collection instruments is an important step. Only after gaining plenty of observational experiences can the researcher effectively use the informal or unstructured method.

Cameras, recorders, notepad. A video camera is the best means of capturing accurate visual and audio data, followed by taking still photos and using slide film. Slides are appropriate for designing classroom enhancement materials. Color photos are good for recalling what you actually saw. Black-and-white photos can be submitted to a publisher to illustrate articles and books. (In the reference section, the asterisk indicates that the author also provided the photos.)

The mini-recorder or dictating machine is an excellent tool for getting complete interview data. However, its use tends to make some people self-conscious. Also, in many firms today cameras are forbidden; business people worry about industrial espionage, theft, and other security issues. Thus the notepad and pen, particularly if the researcher has a shorthand competency, are invaluable.

Developing the instrument. Data to be collected will differ widely, depending on the purpose and reason for the study and how the findings are designed to be used. At first, the list of things to look for and thus that appear on the instrument for recording might be few. Add more to subsequent studies. Or for observations of long duration, several days, add more items and additional recording forms. The following items are suggestive to enhance knowledge of office management and entrepreneurship, including various components that can be used in other classes and in articles, books, and presentations:

> Company demographics, type of industry (see SICS, Appendix B), organizational structure (sole proprietor, partnership, corporation), history of firm and products, background of entrepreneur(s) and why they started this business; organization chart and whether up-to-date, used, shared, etc. International perspectives, if any, such as how and where products (goods and services) are marketed.

> Job titles, job descriptions, and employee qualifications for each: translate findings into what should be taught, how, and with how much emphases (see KASH, Appendix A).

> Office, computer, and information processing systems: hardware, software, how these are used **in support of the needs of this business** (see the SICs in Appendix B). Note comparisons between manual, human, and electronic and telecommunication procedures because despite the rate of automation, people and manual operations still may comprise the bulk of activities (verify from research findings). Note therefore how much focus we must still provide in classes and books on efficient manual and human systems in comparison to thinking the computer will "take care of all."

> The six "Ms" and how they are applied: management of machines, materials, methods, manpower, money, markets.

> Ergonomics--application of office management principles related to: workers, the work system, and the work that is performed by this industry (see the SICs in Appendix B).

> Facilities management--effective use of: vertical and horizontal space, color, lighting, heating, air conditioning, type of furniture and workstation as a fit with employees' physical and job needs (see also ergonomics).

> Behavioral issues: customer service and services, employee policies and benefits, human relations and public relations; communications--verbal, nonverbal, paralanguage; power, etc.

> Marketing plan and how or whether office staffs are involved (the team approach, cooperation on many projects now appears to be the norm and there appear to be few "low-level, nonthinking jobs," but verify via observations, interviews).

> The financial, profit-generating goals, and how or whether office staffs are involved (same as above).

> The security plan and how or whether staff are involved (same as above).

General guidelines and recommendations. For long tour sessions, such as a full day, even a week or more, excuse yourself frequently to seek the solitude of a quiet lounge or office. Use this time to review notes in the notebook and on the questionnaire. Highlight items for further query and clarification. (While gath-

ering background for both SHADOW MOUNTAIN LODGE and STATION KBOE-TV, keyboarding applications from McGraw-Hill/Gregg, this researcher spent one to three full days in each of a half-dozen resorts for the former and a full week in each of three different market-size TV stations for the latter. A lot of good information can get lost or become confused over such lengthy time spans.)

Gather as much supporting documentation as possible, such as policy and procedure manuals, company brochures and pamphlets, reports and correspondence, blank and filled-in sample forms. Expect to block out names and financial data of a confidential nature. Review materials before reaching closure, whether at the end of the day, week, or personal contact with a company representative. Give and invite feedback to ensure accuracy.

Develop printed permission forms and get them signed. Depending on the research design, these statements may include the interviewees' agreement to being quoted, to their pictures being used, to notes recorded on the data-collection instrument. If necessary, agree to verify your written comments with the company rep; don't risk a lawsuit! present the firm in a positive light.

Finally, acknowledge the contributions made by firms. This "thank you" is more than mere courtesy, it provides free advertising for each firm. It takes time away from their work to allow visitations so be appreciative in print (see Appendix C).

Documentation with Electronic Bibliographies

Making sense of data collected from transcripts, in notebooks, on instruments, in briefcases full of supporting documentation and from photos, slides, and videos takes time. Reviewing the literature for the purpose of developing a bibliography whereby your impressions can be compared to the findings from other studies also takes time. Doing it right the first time saves time. Yet it is this oftimes long series of procedures that fascinates many professional scholars. Like the solving of complicated puzzles and mysteries, the true researcher delights in the unraveling and reweaving processes that make theoretical and practical sense of seemingly disconnected data.

Searching for comparative literature. These days of Email and access to Internet at the expense of one's institution makes the "researching" of print matter comparatively pain free. If available, access a variety of data banks via Internet; also call professional colleagues as a result of accessing abstracts of their related studies. You can still rummage through library stacks or pay a searcher to conduct a data search. Choose **descriptors** carefully. Collect two to four dozen abstracts. Manually annotate key points in each selection. Sort abstracts in alphabetical order by author or subject. Open one or more databases at the computer (either subtitles within one large database or separate smaller databases per subheading). Enter highlighted comments from each abstract; **also enter complete bibliographical data**. Print, edit, redetermine priorities, and resort materials.

For example, this process may determine that Jones, Marlow, Purdewsky, Scorpio, and Wong have findings that agree on one side of an issue, while Barr, Church, Duff, and Graf disagree with the first group but agree with each other. Your findings may agree with Group One but not with Group Two or you may have entirely new interpretations. This is how new theories are born.

A related literature chapter or section of the report should not stand in isolation; citings have some bearing on the study or there was no point in conducting and storing the results of this search. Sometimes the search leads the investigator to the starting point of his or her study, other times the literature supports or refutes one's findings. Either way, make comparisons clear and don't be afraid of disagreements. Scholarly debate is healthy, this is how new theories grow and gain acceptance.

Writing the report. A formal research report contains all of the subheadings (or chapters) found in dissertations, no matter how brief each section might be. Think the five "Ws" and the "H" as a starting place and then share with readers what you did, why you did it, with whom, and the results. For some presentations and some types of articles, one need not be as formal as with others. Energized researchers produce reports that excite them. Convey passion as well as findings.

A sample report is provided, entitled "A Delphi Study to Identify Business Competencies Needed for the 1990s." The related literature portion was conducted first, using the above method for creating the bibliography. Ten major program and curricular topics emerged, used in creating an open-ended questionnaire, to which three dozen carefully selected jury experts were identified. The series of three instruments to which they responded allowed for capturing their opinions and predictions as well as data that could be treated statistically in quantitative fashion. They also participated in interviews, alone and in groups.

With this presentation, group activities were designed to illustrate the difficulty of observing, using comic strips and a video as the classroom vehicles. Participants looked for grammar, humor, art, and topical issues in the comics. These and other business issues--see office management/entrepreneurship list earlier--were observed in the video. Groups also competed with each other in identifying industries for each SIC (Appendix B).

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*For these books, the author also provided the photos, many of which were taken during the data-collection periods of conducting on-site observations and interviews. (Note that keyboarding and other skill or application books do not include photos.)

See also Appendix A, KASH for WISH; Appendix B, Standard Industrial Classifications (SICs); and Appendix C, Acknowledgements page from one of the author's textbooks.

Appendix A: KASH for WISH

Observe how KASH is used in organizations; interview personnel to identify KASH examples on the job and required or preferred of job applicants. Update curricula to include KASH. Therefore, KASH is what students should be getting from their education:

K - *Knowledge* (cognitive domain) - content

A - *Attributes* (affective domain) - attitudes, traits, characteristics, feelings, values, experiences. For example, responsible, punctual, ethical, organized, motivated, confident, personable, cooperative...

S - *Skills* (psychomotor domain) - tools for life and work. For example, communications, math, science, computer applications, economics...

H - *Habits* (demonstration of the learning domains--cognitive, affective, psychomotor) - For example, "responsible," "punctual," "ethical," "organized," "motivated" and "cooperative" are demonstrated when students come to school every day, on time, and submit quality assignments on time and according to instructions. "Cooperative," "confident," "personable" people work well with others, communicate effectively, and believe in themselves--because they have KASH.

WISH is how, why, and where people should be able to use KASH (see examples in parenthesis for the concept of "competition"):

W - *Work, workplace, workers* - We spend about one-third of our entire lives as workers, working in the workplace. We work in order to earn money in order to survive and prosper--support ourselves and our dependents. Since we spend so much time as workers, it's also great to be able to enjoy one's work and to satisfy many personal, self-actualized, and societal needs. (Although workers cooperate, businesses **compete** with one another to get customers, to make sales, to pay employees, to ensure a profitable business.)

I - *Individual* - Examples that begin with the Individual right now (e.g., school-related experiences, feelings, attributes, values) help people to understand the personal contributions of KASH. (Although students cooperate in groups and on athletic teams, their team competes with other schools; individual students **compete** for a place on the team, for parts in plays, and so on.)

S - *Society* - The larger society (e.g., community, state, nation, and world; government, business; social and environmental problems; multicultural diversity; handicapping conditions). Examples help people to expand their horizons beyond the personal to the neighborhood, the environment, to corporations and countries both large and small. (Countries **compete** for natural resources and in the world marketplace.)

H - *Home* - Examples address household and economic management, interpersonal and communication issues in the family. These illustrations help students cope right now while also helping them to transfer concepts to the WIS of WISH. (Children **compete** with each other for parental affection; all members of the household compete for space in the home, time to do things, and money--where it will be spent.)

Appendix B: Standard Industrial Classifications

The U. S. Department of Commerce categorizes industries by standard industrial classifications (SICs). The two major categories are subdivided by goods and services, and include the public and the nonprofit sector. Verify organizations in which to observe and interview, based on selecting a variety of industry settings as defined by the SICs. Examples are given:

Extraction includes anything taken off of or from beneath the ground and water, including natural resources extracted through **mining** and the crops and animals grown through **agriculture**. Timbering is under the former and fishing and dairying with the later. Under this classification, we find South African diamond mines and ma-and-pa size Kentucky coal mines, a few acres of produce that's sold by the same growers at roadside stands as well as corporate-owned chicken farm conglomerates.

Manufacturing is the production of goods and the processing of foods and beverages, whether on a huge or a tiny scale. Most large corporations began as small enterprises. Engineer Douglas opened shop with a drafting board in the back of a barbershop; now the firm is McDonnel-Douglas, an aerospace and airplane corporation. In Cheyenne, Wyoming, Taco John went from processing tortillas in a house trailer to global distribution.

Construction builds and remodels things, from bridges to buildings, from highways to homes, from furniture to fine architecture. Think cement, asphalt, steel and stone, bricks and lumber, roofing and tinning, decorating and designing, architecting and engineering, carpentry, plumbing, and electrical work.

Retail Trade reminds us of all those stores we pass and catalogs we receive every day, the places we go or call or write to, to buy the goods that satisfy human needs and wants at all levels identified by Maslow.

Wholesale Trade reminds us of all the businesses that other businesses use as their shopping mall, as well as the warehouses and distribution centers from which world-wide products are received and redelivered elsewhere around the globe.

Transportation moves products and people by air and water, by rail and road. Even mass transit systems started small, with horses and wagons on every continent making deliveries, to the multinational companies of today, from the teamsters union to corporate management teams. Travel agencies, airports, and shipping centers bustle with business.

Utilities today go beyond the basic infrastructure systems of yesterday--water, sewers, waste disposal, electricity, natural gas, and the like. Instantaneous world-wide telecommunication systems, nuclear energy and solar power are found here. Conservation and the wise use of utilities not only serve people and organizations but also address the environment.

Communications deal with "the word" (figures and graphics too, of course), as transmitted and distributed in various ways; e.g., in the print media of books, magazines, newspapers, etc., and broadcast over the airways and through space. The hectic pace of meeting constant deadlines with accurately researched data typifies this industry.

Professional Services are those that call for a bachelor's degree and usually more, plus certification by professional standards boards. Professors, medical doctors and dentists, veterinarians, psychiatrists, some clergy, some counselors, most teachers, some librarians, and attorneys can be counted here.

Business and Financial Services is a big service area and includes banks, brokerages, credit unions, and all manner of financial houses and advice services. Anything dealing with the making of, investing of, and saving of money fits here, from real estate and insurance agencies to individual consultants.

Hospitality, Recreation, and Tourism Services (HRT). The former calls its patrons guests and diners and offers human satisfiers at Maslow's basic-need level; namely, food, beverages, lodging. Recreation covers all types of leisure-time, fitness, and cultural activities from spa to swimming pool, from beach to bowling alley, from cinema to concert. Tourism, touted as the third-largest industry world wide is big business these days as, particularly during any given country's peak season, tour busses and hospitality and recreation services bustle to keep up. Like Communications and Retail Trade, the HRT industry is fast paced and oriented to timely and considerate customer service.

Personal Services, like Retail Trade and HRT, cater to consumers, from diaper services to mortuaries, barber shops to vehicle repair. Like business and financial services, personal service establishments also sell their services to other businesses. Often small and local, many other firms grow big with chains and franchises, such as KinderCare. This industry too is people oriented.

Public and Nonprofit Services include local, county or shire, state or province and national governments. Also identified here are public schools and colleges and nonprofit organizations of all kinds, trade and business groups, unions and professional associations, public- or endowment-supported institutions of museum, concert hall, art gallery, human rights and environmental protection groups, and social services to protect people from each other and themselves.

Appendix C: Acknowledgements Page

OLIVE D. CHURCH

Dynamic Office Procedures: A Student Workbook

PRENTICE HALL, ENGLEWOOD CLIFFS, NEW JERSEY 07632

APPENDIX C

ACKNOWLEDGEMENTS

Materials in this kit represent realistic systems and procedures from numerous organizations, obtained through conference observations and interviews during my year's sabbatical leave from teaching, when I traveled 40 states, Canada and Mexico, and met with people in over 250 organizations. Also contributing information were my own undergraduate and graduate students at The University of Wyoming. Space does not permit the naming of all who contributed to the concepts and materials contained in this workbook kit. Nevertheless, some people and firms deserve special recognition and the author's appreciation, as shown below:

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State Farm Insurance, Greeley, Colorado
Sperry Temporaries, Denver
Tucker's Engineering, Casper, Wyoming
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Dale Vincent, Northwest Pacific Bell, Seattle, Washington
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Defining the Research Problem

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Abstract

This manuscript focuses on important skills needed to conduct research studies and write clear, concise reports. Three major topics–selecting and defining the problem, reviewing the related literature, and formulating a hypothesis–are addressed. Suggestions relative to beginning the research process, moving systematically through the process, and refining the process are presented.

According to an old Chinese proverb, "A journey of a thousand miles begins with a single step." Likewise, the research study process must also have a beginning. If one takes the first step and moves systematically through the process, the probability of completing the study successfully increases dramatically. Selecting a problem is the first step of the research process; the problem provides direction for the study.

The identification of a problem in need of a solution is the first stage in conducting a research study. The selection and identification of a research problem involves a refinement process. It begins with the identification of a problem area, is refined through a review and critical analysis of the related literature, and terminates with one or more testable hypotheses or answerable questions. However, generally speaking, once a problem area is identified and a specific problem is selected for study, a tentative hypothesis is formulated. This tentative hypothesis guides the review of the literature which in turn becomes the basis for refining the statement of the research hypothesis.

Selection and Statement of the Problem

The selection of a general problem area to be investigated that is in or is closely related to one's area of expertise and interests can be rewarding and well worth the time and effort. Choosing a topic of high interest to the researcher and one that will increase understanding in his/her chosen professional field makes good sense.

Christensen (1985) concluded that there are four major sources from which research problems typically originate: theory, everyday life, practical issues, and past research.

A theory, viewed as a group of logically organized and deductively related laws, suggests relationships and thus serves as a source of researchable ideas. A theory is not a body of facts but rather is formulated from generalizations and hypothesized principles. Thus, a theory tends to perpetuate the formulation of hypotheses which are based on sound rationale and in turn facilitate the interpretation of study results.

Another obvious source of problems is the researcher's personal experiences. As one proceeds through life, contact is made with many phenomena that pose questions in need of solutions. There are many researchable questions that can be identified from the interaction and personal experiences that everyone has.

Many research problems arise from practical issues that need to be solved. For example, schools are seriously searching for better ways to conduct the educational process, to improve the school-to-work transition, and to enhance the transfer of learning. Research is, has been, and will continue to be conducted in these and similar areas to solve practical problems.

Previously conducted experiments are also an excellent source of research problem ideas. In addition to answering specific questions, studies often indicate "next step" studies which need to be conducted. Each study leads to subsequent studies by suggesting logical extensions of the original study or by encouraging replication of the study in a different setting. These "next step" studies increase the generalizability of the original and subsequent findings.

After a general problem area has been identified, the next step is to narrow down the problem area to a specific manageable research problem. Since the research problem by definition involves an issue that needs to be investigated, Gay (1992) identified basic characteristics of a good research problem. He described the basic characteristic of a good research problem as one that is researchable, can be investigated through the collection and analysis of data. Another desirable characteristic of a research problem is that it has theoretical or practical significance. If the typical reaction to the problem is "who cares?" it probably doesn't warrant studying because of its lack of sufficient significance. A third characteristic of a good research problem is that it is appropriate for the researcher. In addition to the problem being of interest to the researcher and the researcher having expertise in the area, the problem must also be feasible when one considers the research skills, resources, and time available to the researcher.

A well-thought-out statement of the problem gives direction or purpose to the research proposal and report. Gay (1992, p. 36) concluded that "a well-written statement of the problem generally indicates the variables of interest to the researcher and the specific relationship between those variables which is to be investigated, and ideally, the type of subjects involved." He further stated that "a well-written problem statement also defines all relevant variables, either directly or operationally" (p. 37). The statement of the problem should be accompanied with the background of the problem, including a justification or need for the study expressed in terms of the significance of the problem. The background of the problem should include information that clarifies and enhances the reader's understanding of the problem. The rationale for studying the problem, need for the study, should be justified in terms of its contribution to educational theory and/or practice.

Review of the Related Literature

After the research problem has been carefully selected, appropriately delineated, and clearly stated, the researcher is ready to proceed with the literature review. Typically, the researcher has a tentative hypothesis that guides the review of the literature and narrows its scope to include only relevant items. The development and clarification of the research problem and the accompanying hypothesis normally progresses as the researcher builds a stronger foundation of knowledge through his/her focused reading program.

The review of the related literature is an important component of the research process and should be approached methodically. The literature review involves systematically identifying, locating, and analyzing documents containing information relevant to the research problem. With today's technology, these documents may include books, periodicals, research reports, abstracts, and reviews in printed, microform, and electronic formats.

Gay (1992) identified several important functions to be served by the literature review. The major purpose is to determine what has already been done that relates to the problem. Gaining an understanding of the current state of knowledge about a selected topic avoids unintentional duplication of research. This information also provides the insights necessary for developing a logical framework for the study, a sound rationale for the research hypothesis, a basis for justifying the study, and a more precise statement of the research hypothesis. The review of related studies not only tells the researcher what has been done but also what needs to be done.

The literature review also points out research strategies, specific procedures, and measurement instruments that have and have not been found to be productive in similar studies. The identification of methodological problems specific to the area of study is helpful. This information helps avoid other researchers' mistakes and to profit from their experiences.

Another important function of the literature review is that it facilitates the interpretation of the results of the study. If the results are consistent with other findings, this helps formulate suggestions for "next step" studies. If the results are not consistent, this should encourage describing differences between the studies and providing reasons for the differences.

Some general guidelines to help determine how broad the literature review should be is useful. Most researchers agree that this decision must be based on judgement and becomes easier with experience. Beginning researchers are cautioned to avoid the temptation to include everything. Gay (1992) pointed out that a well-organized, concise review is preferred over a review containing many studies that are not directly related to the problem. Heavily researched problem areas can produce highly-focused related literature reviews. Conversely, new or little-researched problem areas may require the review of any study that is related in some meaningful way to the problem. It is important to keep in mind that bigger does not necessarily mean better when applied to the related literature review. There are many new, important areas of research for which there is comparatively little available research.

Another important consideration when planning the related literature review is to develop a list of key words to guide the literature search. The number of references that can be consulted for a given problem may be staggering. However, there are indexes, abstracts, and other retrieval mechanisms, such as online and CD-ROM computer searches, that facilitate the identification of relevant references. It is important to keep in mind that the computer won't do the review of related literature for you. However, it will speed up the process considerably and may increase its effectiveness. Through the use of key words, computers will search data bases in a matter of minutes as compared to what might take an individual days to do manually. Computers with online capabilities allow the investigator to research data bases and library card catalogs that are located in many different places, even world wide. Many of these data bases contain brief abstracts that can be used by the researcher in deciding if the document is relevant.

After identifying the primary references related to the problem, the next step is to abstract the references. This involves locating, reviewing, summarizing, and classifying the references. Gay (1992) provided a word of caution relative to the use of "provided abstracts." First, they may not include all the important information contained in the articles. Due to typical restrictions placed on the length of abstracts, they often provide just enough information to make a tentative decision concerning relevance to the problem being studied. Second, "provided abstracts" may not be totally accurate summaries of the original documents. Reading the complete document rather than relying on an abstract will generally provide the researcher a great deal more important information.

Many researchers suggest that the actual review of related literature should discuss the references least related to the prob-

lem first and the most related references discussed last, just prior to the statement of the research hypothesis. Gay (1992) suggested that one think in terms of a big V. At the bottom of the V is the research hypothesis, and just above the hypothesis are the studies most directly related to it. Thus, the literature is organized and presented so it leads logically to a tentative, testable conclusion, usually the null hypothesis.

Formulation and Statement of a Hypothesis

After carefully reviewing the relevant literature and becoming knowledgeable of the problem area, the research problem can be stated in the form of a question or a hypothesis. A hypothesis represents a prediction of the relationship that exists among the variables or a tentative solution to the problem. In some research, especially descriptive studies, the researcher may list objectives of the study rather than hypotheses.

Borg and Gall (1989) pointed out that although knowledge is a crucial ingredient in the formulation of a good hypothesis, imagination is also equally important. The researcher must take the time to think through and identify alternatives. The identification of one or more well-thought-out hypotheses is a major step toward an effective research study. The hypotheses identify specific goals for the researcher and provide a basis for selecting relevant samples, dependent variables, and research procedures that will achieve the goals.

Generally speaking, more than one hypothesis can almost always be formulated as a foreseeable solution to the problem. Hypotheses to be tested can result from the literature review, evolve from theory, and/or be based on casual observation of events. Thus, prior knowledge provides the bases for hypotheses.

Christensen (1985) stated that regardless of the source of the hypothesis, it should meet one critical criteria: a hypothesis must be stated so that it is capable of being either refuted or confirmed. In a scientific experiment, it is the hypothesis that is being tested and not the problem.

Four specific criteria that a good hypothesis should satisfy were identified by Borg and Gall (1989). First, a hypothesis should state, either directly or indirectly, an expected relationship between two or more variables. In addition to pointing out a relationship, a hypothesis may also briefly identify the variables and the population from which the sample will be selected. Second, the researcher should have a definite reason, based on either theory or some evidence, for considering a hypothesis worthy of testing. Third, a hypothesis should be testable, stated so as to indicate an expected difference or an expected relationship between the variables used in the research. Fourth, and finally, a hypothesis should be as brief as possible but also provide clarity. For the most part, each hypothesis should state only a single relationship to be tested. This format tends to simplify the analysis of data and facilitates the formulation of conclusions to the study.

Christensen (1985) pointed out that a distinction should be made between a scientific (or research) hypothesis and a null hypothesis. He defined a scientific hypothesis as representing the predicted relationship among the variables being investigated. In contrast, a null hypothesis represents a statement of no relationship among the variables being investigated.

Although an experimental study would seem to be directed toward testing the scientific hypothesis, such is not the case. It is the null hypothesis that is always tested, because the scientific hypothesis does not specify the exact amount or type of influence that is expected. Consequently, support for the scientific hypothesis is obtained indirectly by rejecting the null hypothesis. Hypothesis testing in education contributes to the science of education primarily by expanding, refining, or revising the theory base.

Failure to support a null hypothesis may indicate that something is wrong, and it is up to the researcher to discover what it is. Thus, new hypotheses may need to be formulated and then tested experimentally to achieve a solution to the problem.

Borg and Gall (1989) noted also that hypotheses may be stated in two forms, directional or null. A directional hypothesis states a relationship that the researcher expects to emerge between the variables being studied or a difference between the experimental treatments being administered. In contrast, a null hypothesis states that no relationship exists between the variables studied or no difference will be found between the experimental treatments being administered.

Directional hypotheses should generally be used only when there is little or no possibility that the findings will yield a difference or a relationship in the opposite direction. While both directional hypotheses and null hypotheses can be tested statistically, they require different statistical treatments.

Some researchers, because of their insight into other research findings and theory, often desire to make their research reports clearer to the reader by using both working hypotheses that reflect their expectations and statistical hypotheses that are usually in the null form. In contrast, other investigators state their research problems in the form of questions rather than stating working hypotheses. By specifically stating the question(s) that the research will attempt to answer, the report can be organized so it answers the question(s) posed.

The above suggested guidelines for defining the research problem were written with traditional quantitative research procedures in mind. Many of these same procedures, however, are also applicable to qualitative and ethnographic research--identifying a researchable problem of genuine interest, carefully developing the research problem as well as the phrasing of the research question(s), and formulating one or more hypotheses to guide the study. However, Morse (1994) posited that the selection of a suitable site is a critical decision in qualitative stud-

ies since the investigator typically conducts his or her study in that setting and observes and records the day-to-day operations of that environment. LeCompte and Preissle (1993) noted that another distinguishing characteristic of qualitative research design is that it facilitates a fluid and developmental process of investigation. The steps of defining the research problem and question, selecting the site, and formulating the hypothesis are more likely to be interactive than discrete in qualitative research.

Summary

This article has focused on important skills that are needed to conduct research studies and write clear, concise reports. Selecting and defining the problem, reviewing the related literature, and formulating a hypothesis were addressed to help the beginning researcher better understand the research process and avoid errors often made by inexperienced researchers. Pointers relative to beginning the research process, moving systematically through the process, and refining the process have been presented.

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Establishing a Research Agenda

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Abstract

Modern global competition demands higher and better levels of education, which, in turn, demands higher and better levels of research. Producing quality research in times of diminishing resources provides unique challenges. This manuscript focuses on establishing a realistic research agenda supporting professional and institutional needs, and assisting in establishing the foundation for a successful research agenda. Target and impact analysis; policies and procedures; preplanning, resources, and management; and pitfalls and perks are addressed.

Introduction

Why do research? Reasons can range from the sheer enjoyment of seeking new knowledge to satisfying a curiosity to meeting employment pressures that come with tenure and promotion. For those in academia, research is considered an investment in the future of both the individual and the institution.

To determine the reason for establishing a research agenda, one must address some of the following questions. Why does one want to conduct research? Why is one conducting research? Is it because there is a genuine interest in research? Does one feel the need to answer a question or to add to the knowledge base? Or does it come with the territory -- job responsibility? Hopefully, the researcher is conducting research for all of these reasons. Only the individual can respond to these questions and put forth an agenda.

Target and Impact Analysis

Identifying Priorities

Consideration for establishing a research agenda and/or research priorities includes determining long- and short-term targets/goals. Does the research one is conducting build upon previous research efforts or, is the research a one-time situational effort unrelated to an individual's overall research expertise. Are these goals personal, departmental, institutional, or a combination. Personal interest in research may stem from wanting to develop expertise in a particular area. And if an individual has already become an expert, one may simply want to maintain those personal research skills. In some institutions, departments or colleges set priorities or directions for research. For example, an entire department may specialize in leadership development or teaching and learning as the department's research focus. A researcher may be torn between personal and departmental/institutional priorities/agendas. Funding agencies, by their nature, establish the main agenda of a funded research effort, but in some cases the agenda can be altered to accommodate the individual researcher's needs.

How does the researcher set priorities in their research agenda? Quite simply, the researcher must weigh their personal interests, their personal expertise, their institution's or department's goals, and funding agency's goals. Keep in mind that if a researcher does not satisfy their institution's goals, the others may not matter! The best approach may be to attempt to mesh personal and institutional goals first and then to incorporate agency goals and develop personal expertise as appropriate. Grant funding should not be sought merely for the sake of landing a grant, but should be sought to address a real need. A researcher needs to sort out what is really a need and what is a whim.

Needs Identification

To determine needs, one must consider local/state/national impact. One must respond to the following questions: Who cares? What difference will it make? So what if the research is done? Who needs it? Will the research be a catalyst for long-term or short-term change in program level practices/procedures? Is there a target local, state, or regional/national issue?

Several ways can be use to identify needs that meet identified priorities. Among those ways are to: discuss these priorities with fellow researchers at individual's institutions and at conferences; review recommendations for further research provided in existing research journal articles; discuss the research needs of agencies with whom you wish to work; and, search for research priorities that have been identified by foundations, professional associations or other entities.

Goals and Objectives

Special attention needs to be paid to the identification of goals and objectives. These should serve as the foundation for the entire study and the procedures, findings, conclusions and rec-

ommendations must all relate to properly written purpose and objective statements. The goals and objectives should be manageable, achievable, and realistic. The number of specific objectives should be determined by the focus of the research. Researchers should avoid the temptation to "gather data with a steam shovel and analyze with a microscope."

Objectives are action statements in terms of exactly what is to be accomplished by the grant. They are stated in clear, brief, observable and measurable terms. They should be logically matched with the procedures described in the methodology and evaluation sections, so that they can be evaluated in quantifiable terms. For the sake of clarity, enumerate the objectives. This also helps to present them in a logical order of approach. To indicate when each objective is to be met, provide a time frame.

Policies and Procedures

Legal Issues

Several legal issues should be considered by researchers when planning and implementing their research agenda. Although some issues are relatively minor, the issues discussed here have the potential of causing serious legal problems for the researcher if they are not handled properly.

The first and arguably the most important issue is using and accounting for federal and state funds. The bottom line appears to be simple -- you must use and account for these funds according to the guidelines mandated by the funding agency. The potential for problems in this area exists because universities often use accounting systems, procedures, and expense/income categories that differ from state/federal agencies or private sources. As a result, it is often necessary for the researcher to keep records of all expenditures in both formats to stay within the limits of the project budget. One way to avoid these difficulties is to seek a fixed price contract where you deliver a product for a fixed price, such as a research project. This type of contract does not require you to account in detail for the funds spent other than to your university.

Other legal issues are much easier to address. The researcher must follow state/federal or private funding source rules & regulations related to the administration of research projects. These are usually printed rules and it is relatively easy to comply with these rules. A related issue is accountability -- were the actions you took in the research project legally and professionally justifiable? Procedures related to two other issues, privacy rights and the use of human subjects, are discussed later in this manuscript.

The final legal issue involves the hiring, evaluation, and termination of project personnel. Every university has explicit procedures in each of these areas. It is imperative that the researcher adhere closely to these procedures because, even in the best of situations, one never knows when a problem will occur in one of these areas.

In each of these issues, don't be afraid to ask questions and negotiate with grant sources. As administrator of the project, pay strict attention to detail, i.e., be sure to "dot the i's and cross the t's." And above all, be sure that approvals for all project budgets and changes are secured in writing prior to expending funds.

Ethical Issues

Certainly, high ethics in the conduct of research projects is essential. Anyone can appear to meet the letter of the law on paper, but an ethical researcher will also strive to truly maintain the highest ethical standards. Ethics can be defined as the rules or standards governing an individual's conduct. These rules or standards may be legal, professional, or societal in nature In the case of research, one major issue is abiding by state/federal and university rules. From an ethical viewpoint, this doesn't necessarily mean that these rules always have to be followed "to the letter." However, the researcher should ensure that the intent is attained.

A major ethical issue is that of authorship. Educational researchers often work with other faculty members or graduate students in conducting a research project. The *Publication Manual of the American Psychological Association (4th Ed.)*, commonly known as the APA Manual, provides guidelines that authors may use in determining authorship of research articles.

Two issues must be addressed with regard to authorship, determining who should be listed as an author, and the order of listing of authors. The APA Manual states that individuals who hold primary responsibility for a manuscript should be listed as authors. Individuals with primary responsibility includes those who actually write the manuscript and those who have made substantial scientific contributions in other ways such as formulating the problem, structuring the research design, conducting the statistical analysis, interpreting the results, or writing a major portion of the paper. Those who make lesser contributions should not be listed as authors. Lesser contributions include activities such as suggesting or advising about the statistical analysis, collecting data, modifying or structuring a computer program, and arranging for research subjects. Authors should be listed in the order of contribution to the manuscript, with the principal contributor listed first.

Property Rights

Property rights is a relatively new issue in educational research. In the past, the ownership of the products of educational research were seldom discussed. It was just assumed that educational research had little monetary value and that funding agencies as well as other researchers had the right to use these products as they saw fit. Today, it is becoming common for educational researchers to stake their claim to their research products through contracts, copyrights, and other methods. The most common method of property rights protection used by educational researchers is the copyright. "Copyright protection pro-

tects original works of authorship fixed in a tangible medium of expression." (National Association of College Stores, Inc., and The Association of American Publishers, 1991, p. 3)

Why should the researcher copyright manuscripts? One reason is to ensure that the researcher receives appropriate credit for academic contributions. A second reason is to protect the expertise of the researcher. A third reason and possibly the most important, copyrighting ensures that the author's work is not misquoted or misrepresented.

The researcher should determine what their university and/or granting agency's policies are regarding property rights and then should protect their rights to the greatest extent possible. Often, the researcher may be able to negotiate more favorable property rights than those stated in official policies. Whatever agreement that results, the researcher should take the appropriate steps to protect property rights.

Researchers are protected by federal statute against unauthorized use of their unpublished manuscripts. An unpublished work is copyrighted from the time it is produced in tangible form, such as typed on a page, recorded on a tape recorder, or stored in a computer file. The author retains ownership until it is formally transferred to another. Researchers do not need to register the copyright to have informal legal protection. Formal registration with the Copyright Office in Washington, D.C., is more likely to protect your rights (APA Manual). Copyright protection begins at creation and lasts until fifty years after the author's death (National Association of College Stores, Inc., and The Association of American Publishers, 1991).

Academic Rights

Caveat Emptor -- You may have academic or property rights, but there may be retaliation or other associated professional costs. Even though you may be able to negotiate or force an agency to recognize your property rights, this approach may result in reduction or elimination of financial support for future projects. At the risk of being accused of promoting "political correctness," researchers should carefully weigh the value of securing their academic rights versus the value of maintaining goodwill or receiving external funding to further their research goals.

Human Subjects

An article that addresses policies and procedures for establishing a research agenda cannot omit mentioning research using human subjects. Most research conducted in business education does not pose a psychological or physical threat to human subjects; however, researchers should be careful to assess the potential for such threats and ensure that proper procedures are followed. Since most universities have officials or committees charged with regulating research with, and safeguarding the interests of, human subjects, researchers should discuss their research plans with these individuals or committees and then follow the university's guidelines for such research.

Two key issues regarding human subjects are confidentiality and personal privacy. Confidentiality is an issue because researchers are often soliciting information on opinions, attitudes, and other personal areas. As such, researchers are often obliged to offer confidentiality to human subjects. The main point here is that if confidentiality is offered, the researcher should put procedures in place to ensure that confidentiality is maintained.

The second key issue is personal privacy. Researchers should not violate an individual's personal privacy. In those cases where consent is given by individuals for the researcher to conduct research into personal privacy, researchers should probe these issues only to the extent that it is absolutely necessary.

Preplanning Resources and Management

When starting out to seek funds for a research effort, it very important that the researcher has a plan for accomplishing the goal. After one has crystallized a personal research agenda, then the search process begins for funding. Consider the matching of one's own research agenda with that of a funding agency. Several factors need to be considered when preplanning resources and managing the resources: types and sources of funding available, budgeting and forecasting, negotiating with granting agencies, and effectively using people power, facilities, equipment, and time.

Funds

In this age of tight budgets, faculty in many universities are expected to support their research efforts with funds from outside their institution. In the last decade, the ability to obtain grants (grantsmanship) has gained more importance in the tenure and promotion process in all universities.

Educational grants are provided by many sources, private and public. Each type of funding agency has its own set of needs, policies, and potential problems. Large federal agencies sometimes prefer to award grants to institutions instead of individuals because institutions tend to be more accountable than individuals.

Sources for funding may be located in directories at local or university libraries, through computer data base searches, or through a professional association like DPE. In 1990, the Federal government was the world's largest single grantor, providing $1.3 billion to education (Digest of Education Statistics, 1991). Corporate sources contributed over twice the amount awarded by the Federal government (Grassmuck, 1991). During that same period, 300 of the largest U. S. Foundations made awards totalling $1.5 million (Kovacs, 1992). A list of potential funding sources can be found at the end of this paper.

Grants can vary in terms of size, purpose, and duration. The size of funding can range from a minigrant ($500) to supergrant ($1,000,000 plus). Small grants can be used to fund low cost research single focus efforts involving a limited amount of staff

time and resources. Whereas, at the other end of the spectrum, supergrants may have multiple goals and may involve more than one institution, extended time periods, and different subjects. Small grants can be obtained from universities as planning grants for the purpose of planning and preparing a proposal to seek large grants. Other agencies and private sources have been known to contribute to these planning efforts. Seed money grants are provided for the purpose of getting a research effort started with the intent that other funds will supplant these funds. Grants may be awarded to units/departments for special projects which involve several faculty members. Competitive grants by nature are becoming increasingly more difficult to obtain. This is due to the fact that there is an increasing number of applicants for a continually dwindling source of funds. There is a wealth of information on grantsmanship that is available in articles, how-to-do books, self-help guides, and books that offer tips for increasing the likelihood of obtaining grant funds. When writing a proposal--think like a reviewer; use straightforward, clear, and concise language; and request copies of successful proposals from the identified granting agency to review for better understanding of the funding agency's philosophy and requirements.

The duration of grants can extend from a few months to several years. Summer research grants commonly available from universities are incentives for 9-month faculty to carry out a personal research agenda. At the other extreme, national grants can be funded for three to five years. The average grant has a duration period of 12 to 18 months. Most public grants operate on a fiscal year schedule. The fiscal year may vary by the funding agency.

Cost-sharing grants can range from the type where the recipient institution matches in dollars (hard money match) the amount awarded by the granting agency to the type where facilities or staff (in-kind match) are used as the matching contribution. Government (public) funds consisting of federal funds, state funds, and county/city funds are available in several forms. Project grants and categorical grants are designed to fund proposals for special programs. Formula grants allocate funds according to a set of criteria for area-specific programs and may go through an intermediary, such as a state or local government agency. Block grants, also allocated on a formula basis, are for a group of related programs with funds sent to state or local governments for distribution based on identified priorities. Contracts are used when government agencies solicit proposals through RFPs (Request for Proposals) for some predetermined activities. (Bauer, 1988)

Budgeting and Forecasting

Since the basic purpose of a grant proposal is to request funds to meet an identified need, the budget is one of the most important components of the proposal. It translates the project's goals into fiscal terms. The budget should be realistic and should correlate with the objectives and methodology.

Preparing a budget can be time-consuming. When possible, establish flexibility in the initial budget preparation. It should be free of extreme padding, but it should provide cost adjustments for inflation and other factors that may increase the cost during the life of the project. The budget should list any in-kind matches--services or items that can be used for the project that will not cost the project, e.g. overhead cost or part of the researcher's salary.

A well-constructed budget section usually consists of two parts: an itemized form and a narrative justifying each item. General budget categories include such items as personnel costs, overhead (indirect) cost, supplies, travel, computer time, equipment, operations, and publication cost. A word of caution should be given with respect to in-kind matches and indirect cost. It may or may not be a requirement. Some granting agencies, e.g. foundations, may not pay for indirect costs if those cost are simply aggregated into other cost figures, but will allow indirect cost if separated as a line item. Not adhering to the funding agency's guidelines exactly can disqualify the proposal.

Typically, personnel costs are listed separate from nonpersonnel costs. Personnel costs include salaries and fringe benefits for the project director and staff, stipend/honoraria for any participants, and fees for consultants and contractual services. Examples of nonpersonnel costs are equipment, materials and supplies, rent, travel, telephone, postage, shipping costs, printing, fees, dues, and other costs that are unique to the project.

Some helpful hints when planning the budget include having cost quotes, and having clearly delineated the costs to be met by the funding source and those to be provided by the applicant or other parties. It is critical to set up university accounts which are in formats that are compatible with the funding agency's categories. In order to make budget adjustments and adhere to any restrictions (line vs category), extend expenditures or other related changes, follow policies and procedures provided in the award. Be willing to talk or negotiate with granting agencies regarding potential funds or awards.

People Power

The greatest strength for accomplishing positive results with any task or research project is found in the people who direct and/or support the project. Human capital, like any other capital, must be sought and placed carefully for maximum benefit. Matching people with tasks/projects is an essential step in the process.

Consideration for the people selection process for the project should be established in the initial planning of the research agenda. Answer questions such as: Why a task needs to be done; Where would that human capital be found; Will it be available at the time needed; For what responsibilities will the person(s) be accountable; What can be offered to those who commit to the task or project; Who is the best for the job to be done; What

knowledge and what skills and habits are essential: Can existing staff assist or carry out the task or project or will new personnel be needed. The principle behind all this questioning is two-fold: 1) competent people, and (2) people who make a fantastic impression on the people with whom they encounter (or who count) and those with whom they interact on and off the job.

Success for the research project generally begins with the project director whose first responsibility in initializing the project is to select the "right" person for the "right" job. Once the "people" questions have been carefully pondered and decisions made, the building of unit potency can be assessed and enhanced. Clear understanding of the role and responsibility of each person on the project is critical to the success of the project. The staff needs to know the scope of the planned research from beginning tasks to the expected outcomes and beyond. The project staff can "make or break" a research project. If there is just one thing an individual can do as a project director for best results, then, first and foremost...get the right people for the right tasks (and maybe, just get out of the way!). Success is highly likely to occur. It requires thinking through the process before taking action on personnel matters. It means allocating money and time to this end as well.

Depending on the type of project one is undertaking, in addition to the competencies mentioned above, the demographic makeup of the staff may be critical to the success of the project. Consideration of education and experience may be dependent on the skill levels required for the project. However, in general, good work ethics, communication and interpersonal skills, and professionalism are key elements to consider in making sound decisions regarding people power for the project.

Once the people are in place on the project, highly productive staff meetings will be especially important in the initial stages of a project. Setting team goals to support the mission of the endeavor adds importance to each part of the process and to the overall achievement of the project. Each person should leave the meeting knowing exactly what to do, the time frame expectancy and a plan for completing the tasks, with tasks delegated and identified with key personnel. Regular, periodic meetings throughout the process can keep all project personnel informed of the progress while allowing for total input as a team to individual tasks or providing assistance in problem areas along the way to completion. This effort can help keep the team motivated and feeling valued while achieving project results.

Caution should be exercised to avoid over-extending existing staff for special research projects. This is especially necessary in times of shrinking budgets and fewer personnel. When preplanning is well done, additional staff lines should be included in the budget. This can give greater satisfaction to those who lead the project and to those who work on the project as well as achieve the needed results in a more timely and efficient manner with less stress and confusion. Though existing staff may be very capable and competent people (and with Power!), their first priority is to the existing job, and to take on extra duties without compensation may result in less desirable outcomes in every respect.

Internal peer review in each stage of developing a research agenda, in developing a project, or in the process of reaching results can be very helpful. Sometimes those individuals who may have less investment can be more objective. They may offer suggestions and enhancement ideas to make the project better.

Gaining professional support for the research contributes to the ease with which a task or project can be completed. Gaining favor with higher levels of administration can be essential. In addition, finding a place to call "home" for the project is important to facilitation of project activity. This gives evidence of the importance of the research agenda both internally and externally.

People power can be positive or it can be negative. Focusing the power of human capital toward positive outcomes is a critical element in preplanning resources and management of a research agenda. Monitor project activity and progress for best results. Should negatives develop with the people on the project, take steps early to address those problems. Replace those persons whose power is draining on the progress of the project so that positive people power can again be the capital with which one works.

Facilities and Equipment

Facilities becomes a concern when a university does not have those necessary to conduct a research project. Whether the project site is on a university campus or in an off-campus location, the university (or other owner) may be willing to donate the space to the project or they may require a lease arrangement. Regardless of the method used to acquire the facilities, site selection may be critical in some projects. Some projects demand the use of a high school or business/industry location for simulations, data collection, or other research activities. Whatever the needs, be sure that all arrangements are made in advance and that all agreements for facility use are approved in writing.

Equipment acquisition is usually handled by purchase or lease, although equipment loans may be arranged. Federally funded projects usually encourage or require that all equipment must be leased or may be on loan. However, if equipment purchases are allowed, ownership of the equipment usually reverts to the federal government at the completion of the project. State government and private projects vary in how equipment is handled. Regardless of how equipment is obtained, the researcher must make a highly accurate estimate of equipment needs prior to initiating a research proposal because changes in equipment requests, along with related paperwork required by the university and funding agencies, are relatively difficult to manage. Then, at the end of the funded project, it is critical to maintain an inventory and release that property that must be returned to state

or federal inventories with appropriate signatures and through the proper channels.

Time

This aspect of research projects is often the most difficult to estimate. Researchers need to consider the frame of the objectives; the audience involved; the establishment of facilities, equipment, and project staff; the impacts of near and far environments; and an estimate of all resources needed to complete the task. And, after these estimates are made, be sure to always expect the unexpected! Build in flex time or cushion for the unexpected.

There are several arrangements that can be made to secure personnel time. Faculty time, for example, may be purchased from their regular work load, giving them a load reduction in exchange for working on the project. Time buy outs tend to be more problematic with secretaries and other civil service personnel, although not impossible.

Another key element related to project management is good use of time management skills. The researcher should use delegation to its fullest potential. In addition, university services such as data entry, data analysis, document preparation, and mailing services should be used to minimize the time the researcher has to spend on management activities.

Pitfalls and Perks

With every undertaking, there will usually be some pitfalls to avoid while at the same time, there will likely be perks for the researcher and the supporting entities. Minor pitfalls may only serve as a temporary stumbling block. However, if attention is not paid to the component parts in planning and implementation of the earlier considerations mentioned in this paper, then pitfalls may cause one to more seriously stumble in the research arena. Below are several items for which attention is needed as one reviews the process of establishing a research agenda. This step in the process allows one to assess individual pursuits regarding the reason why one will do research, what factors to consider, how to go about making some of the many necessary decisions for personal and professional growth and development through research activity, and if the decision is to establish the research agenda, so what...who cares, what difference does it make, and what's in it for the researcher.

Pitfalls

All too often one can suddenly find self in a state of overextension regarding time, energy, and resources. This state can lead to negative outcomes even with the best of intentions and a professional dedication beyond any expectations. Overextension usually means one has said yes too often. This may have happened because of varied interests, a desire to get ahead in professional pursuits, unexpected crises in personal life, or a multitude of other reasons including wanting to "shine" and extending a helping hand farther than mind and body will allow. Saying yes too often to what one truly enjoys or what one believes to be politically correct can also be a hazard. Saying yes to projects outside one's knowledge base, expertise, or personal/unit capability without securing support and help from others may lead to research efforts with results reflecting less than a standard of excellence.

Another pitfall which one may encounter is that of time management, inefficiency, and minutia. Getting bogged down in specifics, having too many tasks in action at one time, failing to identify needs first, thinking through what are important and urgent matters and what may be simply wants or less critical matters, allowing too many unnecessary interruptions in the course of the day, discriminating among the multiple responsibilities or just not having an awareness of time may be a management problem and contribute to inefficiency. However, keep in mind that how one manages is a matter of preference. There is no one way to do anything; yet there are general guidelines which any person may use for their own preferred style. It is to these guiding principles that the following information is presented.

Failure to use a system to get work on the research done is a pitfall. The system one uses should be comfortable for the individual and result in getting things done. When using multiple systems for a project, coordinate them into a workable and personalized system with the goal in focus. Researchers may wish to consider using a time and resource management system such as the Daytimer© or the Franklin Day Planner© system.

A lack of focus on the tasks or project can cause undue pain and unnecessary delay in completing the research. Establishing a realistic schedule for the flow of work to achieve the objectives can eliminate delays and frustrations.

Mismatch of personnel to tasks may delay completion of the research or place undue stress on people working with the research thereby resulting in inefficient or ineffective outcomes. Preplanning and consultation with project personnel early in the process may eliminate this pitfall.

Neglecting to delegate responsibilities which other team members can do can cause one to be delayed in accomplishing goals. Some caution should be exercised in the delegation process in order to be certain that people power is maximized. Clearly communicate and agree regarding the responsibility and the authority, then step aside and let the system work. Some monitoring of delegated tasks may be necessary, depending on the situation, people involved, and the tasks; however, as a general rule, delegate the responsibility and the authority to get work done. Be sure the project director or lead researcher is kept abreast of progress (or problems if help is needed).

Spending time on minutia by overanalyzing or overplanning or over editing or by compulsive perfectionism is a pitfall often overlooked. To know what minutia is, one must know who the

intended audience is, what the researcher willing to commit, how results are to be achieved, and the consequences of the actions. Anything outside of the needs of the research and the specific researcher can be classified as minutia. Identify the problem, plan the research along acceptable standards, review and edit, act, and reflect on ways to improve the situation if possible and if not, accept the things which cannot be changed and move on to the next step. Worry over the past won't change anything, so learn from mistakes and move on to the next task or project.

Lack of reality checks may provide the researcher with a false sense of accomplishment and may cause one to be distracted and frustrated with the project or with personnel. Determine a balance between too few and too many reality checks. Either can be a pitfall. The lack of a "just do it" attitude or the abundance of that kind of attitude can severely limit the researcher effectiveness. A balance of caution and action by the researcher or project director is essential for maximum management, efficiency, and quality controlled outcomes.

Teaming with others to conduct research can yield quality results and carry less demand on an individual. Sometimes it can lead to co-dependency, limiting the expertise and range of possibilities for an individual and communicating a weakness (even if one does NOT exist). On the other hand, too much independence can indicate an unwillingness to work with others, and communicate a wrong impression as well. The key principle is to pursue individual research interests and also collaborate on some research in order to communicate a willingness to work as part of a team. Doing both turns a pitfall into a perk.

Philosophical and environmental changes in departments, colleges, universities as well as global changes are certain. The focus or emphasis or thrusts shift as different personnel, administrators, programs and world issues change.. Essential to any research project plan is building flexibility and transfer capabilities into the individual research agenda. Many efforts may be individualized while contributing to the unit where it is located. If one can "piggy back" some efforts or unite with others to cut costs if budget crises occur, chances are that research will have a path to continue. Failing to carve out a niche (a focus) in individual research efforts may be hazardous to a professional career. Be assertive enough to claim professional credit for cooperative work and professional enough to give credit where credit is due in a fair measure. Unfortunately, the "stars" do not always shine if one does not keep alert to such pitfalls. Ask for funds, ask for help, ask for assistance, ask for what is needed...it may just be that the researcher gets what is asked or it may be a negative response. Especially in times of change, one does not know if one does not ask. It will either be a yes or a no. Then, the researcher can plan from that...avoids other pitfalls.

Any number of structural and human barriers can exist or arise. Personality conflicts, politics, legal ramifications, and institutional policies and personal agendas can inter into the decision-making process...from proposing to initializing and throughout the research project. Failing to consider any of these barriers from beginning to end can result in failure or at best, in not reaching the desired results in a timely manner. Learn to recognize the structural and human barriers and compensate or shift or eliminate those elements which would lead to unhealthy risks.

Become cognizant of potential pitfalls and plan for avoidance. Do reality checks of interests vs needs; examine individual and team strengths and weaknesses; review goals, objectives, resources and requirements; and, evaluate the whole against the parts, the benefits and the liabilities, the current and future research agendas. The researcher should make decisions using his/her integrated and internal principles while allowing for external factors and their impact on the agenda.

Perks

When a research agenda is well thought out, carefully conducted, and shared with interested entities, certain perks are often received by the researcher. Some of these may be tangible rewards such as salary increases or extra compensation of some kind, tenure and/or promotions, travel, or improved teaching capabilities or professional environment. Other perks may be non-tangible rewards such as self-satisfaction of knowing a job was well done or pride in making a contribution to the knowledge base or establishing a new initiative based on vision. Perks may be internal in the sense of opportunity which nurtures the spirit of adventure or promotes entrepreneurship, or satisfies the urge to lead the charting of undiscovered waters in a particular area. Some individuals desire perks which are personal and internally satisfying, seeking little from the external forces while others need the external perks first and foremost, caring little for internal satisfaction. As often is said, the internal satisfaction does not put "vittles on the table"; yet, having self-satisfaction of "a job well done" contributes long term to the well-being of human beings.

From the career development perspective, establishing a research agenda and carrying it out helps to build a vita whereby others judge contributions, worth and applications (locally and globally). It also allows one to build portability of focus and expertise. Additionally, it prepares one for new career opportunities as research agendas evolve.

A major benefit of a research agenda is to maintain personal research skills and keep the knowledge base current. One must focus research reading of the literature and push into unexplored areas to expand that base. This can be used in the teaching and service missions of the institution as appropriate. One can be the expert from which others seek knowledge and direction.

Society gains from the development of new knowledge and processes. The dissemination of information can allow the general public or specialized entities to gain new knowledge and have opportunities for applications in personal daily life or in the wold of work. Research can contribute to improved preparation of the work force through knowledge or skill gains. Program ex

istence can sometimes be validated through the research efforts in that program or members within the unit. Constantly renewing or introducing new findings in research can have a multiplier effect. Involvement fuels involvement; therefore, it cannot be known where researchers influence ends. The more one knows, cares, and shares, the more gains for all...from the individual and the unit to America and the world. From personal gain, satisfaction, and recognition to professional honors and awards, field breakthrough, and achievement, there are perks for everyone if establishing a research agenda is the goal of the individual and the institution with which one associates. Family and friends are rewarded indirectly, usually in a supporting role. The individual researcher is rewarded directly, whether intrinsically or extrinsically, if research is that responsibility which one prepares to do, and is what one enjoys doing. Establishing a research agenda is essential for a new professional and essential for continued professional development of the experienced professional.

Resources on Grant Funding

Books

Bauer, David G. *The "HOW TO" grants manual: Successful grantseeking techniques for obtaining public and private grants (2nd Ed.)*. New York: Collier Macmillan Publishers. 1988.

Herring, Kenneth L. (Editor). *Guide to research support (3rd Ed.)*. Washington, D.C.: American Psychological Association. 1987.

Lauffer, Armand. *Grantsmanship (3rd Ed.)*. Newbury Park, CA: Sage Publication, Inc. 1983.

Reference Materials

Annual Register of Grant Support: Directory of Funding Sources
The Catalog of Federal Domestic Assistance
Chronicle of Higher Education
Commerce Business Daily
Corporative Foundation Profiles
Federal Assistance Monitor
Federal Grants and Contracts Weekly
Federal Register
The Foundation Grants Index
The Foundation Grants Quarterly
The Foundation Directory
The Grantsmanship Center News
National Data Book of Foundations: A Comprehensive Guide to Grantmaking Foundations
National Directory of Corporate Giving
Taft Corporate Giving Directory
Taft Foundation Reporter: Comprehensive Profiles and Giving Analyses of America's Major Private Foundations

Centers

The Foundation Center, 79 Fifth Ave., New York, NY 10003., (212) 620-4230.

The Grantsmanship Center,. Dept. DD, P. O. Box 6210, Los Angeles, CA 90014

Computer Database Research Services

Congressional Information Service Index (CIS Index), Congressional Information Services, Inc., 4520 East West Highway, Suite 800, Bethesda, MD 20814, (301) 654-1550

Dialog Information Retrieval Services (DIALOG), 3460 Hillview Avenue, Palo Alto, CA 94304, (800) 334-2564

Educational Research Information Center (ERIC), National Institute of Education, Washington, DC

Federal Automated Program Retrieval Information System (FAPRIS), General Services Administration/KM, 18th and F Street N.W., Washington, DC 20405, (202) 453-4126

Foundation Center Data Bases, 79 Fifth Ave., New York, NY 10003

The Sponsored Programs Information Network (SPIN), The Research Foundation of S.U.N.Y., P. O. Box 9, Albany, NY 12201, (518) 434-7150

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Digest of education statistics, 1991. (November 1991.) Washington, DC: U. S. Government Printing Office, p. 360.

Grassmuck, Karen. Colleges and universities got lion's share of money companies gave to education in 1990. *The Chronicle of Higher Education*. October 23, 1991, p. A29.

Kovacs, Ruth. (Editor). *The foundation grants index, 1992 (20th Ed.)*. New York: The Foundation Center.

National Association of College Stores, Inc., and The Association of American Publishers. (1991). *Questions and answers on copyright for the campus community*. Oberlin, OH: Author.

Getting Research and Textbooks Published

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Abstract

The authors draw from their experiences in publishing in the professional literature and as editors of a national professional journal in explaining requirements for research and publication in various media including refereed and non-refereed journals, research reports or monographs, and trade journals. Specific information is provided on where to publish, manuscript requirements for various publications, and a system for keeping work in the publication pipeline. The authors provide examples of review criteria and how to use review feedback productively. The authors conclude with an explanation of the textbook publishing process and the impact of technology on research, writing, and publication.

Introduction

In many universities, publishing is a necessity for academic survival. Putting aside economic considerations such as keeping one's job, academics conduct research because it is the key to knowledge and they submit it for critical review because knowledge amounts to little unless it is both worthwhile and shared with others who can benefit from it. This paper focuses on sharing research results by publishing in various media; also, guidelines for doing research are provided because the process necessarily impacts the product, i.e. the manuscript submitted for publication.

The sharing of knowledge generally requires publication in the professional media including trade magazines, professional journals, peer-reviewed journals, and books. This paper focuses on these publications with guidelines to increase the probabilities of acceptance. Even the most useful and interesting research must be presented within standard guidelines to be accepted in the professional literature. The authors base this information on their combined experience of over 15 years of research with over 100 articles published in refereed, trade, and other publications; two books; chapters in the NBEA yearbook; and as editors of a professional journal.

Prospective authors need to know the review status of publications, the audience toward which the publication is directed, the writing style preferred by the editor(s), and the requirements for manuscript style. Often knowing the reputation of the publication for turnaround time on reviews and acceptance rates can be very helpful as well.

Types of Publications

The difference between refereed and peer-reviewed journals is a subtle, but important one, and there is lack of agreement on the meaning of those terms. A tenure or promotion committee may have interesting and divergent definitions of these terms that the candidate may be obliged to demonstrate. *Refereed* means that the manuscript is submitted to a knowledge expert for *blind review*, i.e. a judgement on the quality of the submission without knowing the identify of the author. *Peer-reviewed* means that one or more people with expertise in the same field evaluate the submission presumably but not necessarily without knowing the author's identity. Therefore, an article that is refereed is also peer-reviewed, but the converse is not true. Examples: The *Delta Pi Epsilon Journal* is refereed; the *Business Education Forum* is peer-reviewed.

A variety of professional publications fall under the umbrella of trade publications. These include research booklets published by local, state, and regional chapters; the NBEA yearbook (in past years); and monographs published by national organizations, all of which are examples of professional trade publications specifically for business education. Generally these publications are not refereed. *Modern Office Technology, The Office, Records Management Quarterly*, and *WordPerfect Magazine* are examples of industrial trade publications directed toward practitioners who are not in academia. The articles in these publications are selected by the editor-in-chief or a staff editor, often articles are solicited and the authors are paid a standard per page rate.

Textbooks, study guides, workbooks, and a variety of other academic materials fall into the writing-for-profit category. Some controversy surrounds their legitimacy as research products. If you ask anyone who has written one of these, indubitably the author(s) will respond that the work involved far exceeded a typical research paper. University tenure and promotion committees generally rank textbooks highly as refereed articles (Lundgren, 1994). However, administrative officers such as chairs and deans rank textbooks or lower than a single article in a refereed journal or even a presentation (Luft, Lundgren, & Ivarie, 1993). In general, all publications with multiple authors are ranked lower than single-author ones regardless of their quality or the journal in which they appear. (Lundgren, 1994)

All of the foregoing considerations have a bearing on how one writes research results and where one attempts to have them published. A great deal of effort is expended in the research and publication process and, although research has merit for its own sake, the realities of publishing to survive in academia must be addressed.

Publishing in Journals

The publication that receives the highest acclaim is the refereed, single-author article in a prestigious journal. Usually at least one refereed article is required for tenure. Getting published in a refereed journal is exhilarating; being rejected is devastating, especially for first time submitters. Knowing which journals are refereed and their requirements is essential as is keeping an up-to-date listing of the editors since they (and the submission requirements) may change from year to year. Successful authors exercise professional integrity, understand the review process, and deal with rejection constructively.

Publications: Their Reputations and Review Methods

All journals are not equal. Some are regarded as scholarly; some are popular though not research-oriented. Van Hook & Olivas (1984) determined from a survey of business teachers educators that the top four periodicals at that time were *Delta Pi Epsilon Journal, Journal of Education for Business* (then named the *Business Education Journal*), *NABTE Review*, and *Business Education Forum*. A later survey of Delta Pi Epsilon members by Scriven and Wunsch (1988) found the publications read by 50% or more of the business teachers included (in alphabetical order) *American Vocational Association Journal, Balance Sheet, Business Education Forum, Business Education World, Delta Pi Epsilon Journal, Delta Pi Epsilon Rapid Readers, Journal of Education for Business, and NABTE Review*. Then in 1990 DuFrene, Shane-Joyce & Zimmer determined by a survey of business faculty in AACSB-accredited schools of business that the four publications with the highest recognition/rating factors were *Delta Pi Epsilon Journal, NABTE Review, Business Education Forum* and the *Journal of Business Communication*.

The *Business Education Index* published annually by Delta Pi Epsilon provides an excellent listing of publications in which to publish along with the name of the editor (as of the publication date of the *Index*). In past years, the following articles have provided publishing information:

> Chaney, Lillian H. and Catherine R. Gould. When the choice is publish or perish, find out where to publish! *Journal of Education for Business*, April 1989, pp. 323-324.
>
> DuFrene, Debbie D., Marguerite P. Shane-Joyce, and Theresa M. Zimmer. Quality perceptions of journals for business education professionals. *NABTE Review*, No. 17, 1990, pp. 38-42.
>
> Ownby, Arnola C., Rosemarie McCauley, and B. June Schmidt. Publishing in professional journals. *Business Education Forum*, NABTE Bulletin 111, March 1989, pp. 23-27.

Appendix A is a listing of journals and magazines with which the authors are personally familiar. Also, a review of *Cabell's Directory of Publishing Opportunities in Business and Economics* (or in Education) will reveal publishing possibilities. Manuscript guidelines (style sheet) will be found in the journal itself or, in the case of a trade magazine, can be requested from the editor. Manuscript guidelines tend to follow similar standards, but some details may change so it is important to have a current copy of the publication and to be familiar with its contents. Anyone who tries to publish in a publication with which he/she is unfamiliar is likely to be rejected. Knowing your audience is a good idea.

Professional Integrity

In general, a research publication includes a description of the population and sampling, the statistical tools used, and the results of the research, which are usually reported in table format. Journals have different requirements for reporting research results so recent issues of the journal under consideration should be obtained and studied to determine the accepted format. Two other important considerations go beyond the requirements of acceptable format.

In business education and related areas it has been common to have research data analysis done by a third party such as an educational psychologist, a statistician, or a computer specialist. While this should be reported in a manuscript, it is likely to decrease one's publication possibilities. Scholarship in the research community assumes that researchers are able to perform their own statistical analysis. To report that this is not the case will be detrimental to the researcher. This is not a value judgement, it is a fact. The more successful researcher will report the statistical methodology as well as the tools used such as SPSS®, SAS, or other computer software statistical applications. If someone's assistance is sought for the statistical analysis, that person should be included as a co-author according to the American Psychological Association (APA) guidelines for determining authorship.

> Substantial professional contributions may include formulating the problem or hypothesis, structuring the experimental design, organizing and conducting the statistical analysis. . . . (APA, 1983, p. 20)

These guidelines also have relevance to the ordering of authors' names on manuscripts with two or more authors. APA states:

> Authorship is reserved for persons who receive primary credit and hold primary responsibility for a published work. Authorship encompasses, therefore, not only those

> who do the actual writing but also those who have made substantial scientific contributions to a study. . . . Authors are responsible for specifying the order in which two or more authors' names appear in the by-line. The general rule is that the name of the principal contributor should appear first, with subsequent names in order of decreasing contribution. (p. 20)

A final consideration is the ethical imperative to submit exclusively to one journal. Professional publications will require a statement from the author before publication that the manuscript is not under review elsewhere and has not been previously published. We know authors who do make multiple simultaneous submissions; we do not do so, and we believe the practice is both unethical and unprofessional.

The Review Process

The higher status professional journals are proud that they accept a very small proportion of submitted manuscripts. The acceptance proportion is often reported as a measure of the status of the journal. The assumption is that an article published in a journal that has a rejection rate of 85% is much better than an article published in a journal that accepts 85% of the submitted manuscripts. Consequently, the aspiring author will find that acceptance rates are in the 10-25% range for most professional refereed publications. However, peer-reviewed publications may have a higher acceptance rate.

Authors and editors have vastly different perceptions of the review process. Authors expect acknowledgement of receipt of their manuscript and a timely review, generally relying on the stated review time. When several months pass without any information concerning the status of the manuscript, authors are understandably concerned. In our experience, few journals provide timely information to authors, and reviews commonly take four to six months.

Editors, on the other hand, see a quantity of manuscripts to be processed. The editor's management style will determine how closely the review deadline is followed and the amount of feedback an author receives. The typical blind review process consists of the journal staff checking to make sure that a submitted manuscript does not have any identifying information and then sending the manuscript to one or more journal reviewers for their evaluation. Reviewers will make a publication recommendation sometimes using a review form for the manuscript. The author may receive a copy of the review form along with the editor's decision or may receive only a letter stating that decision. The review form used for the *Office Systems Research Journal* asked reviewers to recommend ACCEPT, REVISE (with suggestions for revisions), or REJECT. Given these possible outcomes, we suggest the following responses:

ACCEPT Celebrate and pat yourself on the back for a job well done. Sign the copyright release and send it to the journal.

REVISE If you receive any encouragement at all to revise and resubmit, do it. This will be difficult and many good manuscripts die because of feelings of rejection. Too often reviewers see their role as punitive. Sometimes reviewers have not carefully read the manuscript, have misinterpreted it, or are incompetent to judge the statistical procedure. Nevertheless, making the requested changes as reasonably as possible and resubmitting is the best course of action.

REJECT Do not assume that a rejection means the manuscript is unpublishable. It only means that the journal did not accept it at this time for any number of reasons. Rewrite it and resubmit to another journal. If there seems to be no reason to rewrite it, then just send it to another possible publication source.

As an example of the above possibilities, an actual history of a manuscript through a series of rejections, revisions, and final acceptance is included as Appendix B. The example extends over two years, a normal timespan for an active researcher. Turnaround times and length of time to publication necessitate constant production, so the number of manuscripts going through various stages will accumulate. Appendix C (PIPELINE), an example of a publication tracking system that facilitates keeping the information straight, contains five components:

*.ART This refers to a standard naming convention with the first eight characters identifying the topic and version. For example, COMUSEn actually begins with COMUSE0.ART which is the first rough draft/outline. COMUSE1.ART and COMUSE1.SUB are the first manuscript and letter of submission.

Title The title of the manuscript which may change over versions.

Act This is the action taken such as "sent" to journal, "rcvd" as received notification, "rjct" means was rejected, and so on.

To The journal to which the manuscript was sent.

Date The date of the action.

When a manuscript is accepted and actually appears in print, then its trail is removed from PIPELINE. Also, manuscripts are removed when they are no longer viable.

Publishing in Other Academic Media and Trade Magazines

Professional publications such as research booklets published by local, state, and regional chapters, the NBEA yearbook, and monographs are solicited by the editor or someone in the professional organization such as the president or a publications committee. Authors may be selected on the basis of their reputation

in the field and past publications, so having a track record helps considerably. Industrial trade publications, on the other hand, generally require little previous experience as an author--and they pay by the page!

Requirements for Trade Magazines

Publications such as *Modern Office Technology, The Office, Records Management Quarterly,* and *WordPerfect Magazine* accept articles solely on the basis of their relevance to whatever topic is being covered in a particular issue and the quality of the article (in the editor's opinion). The requirements for writing articles in trade magazines vary considerably among trade magazines so a letter of inquiry can pave the way. Authors may ask what topics are proposed for upcoming issues and ask for manuscript guidelines.

In business education, the trade publications are not considered very important compared to refereed scholarly publications. Generally, the editors are not interested in typical academic research. Their focus is more on state-of-the-art and new applications. Of course, new interpretations of existing practices are also of interest. The teacher will find that the trades can provide useful "shorts" of the latest business examples for use in lectures and class materials. If an instructor is preparing materials for a course that involve new applications or concepts, these are worth submitting to a trade publication. The trades accept quickly, one's name is in print, and almost all of these publications pay quite well (about $200 page is average).

The trades are highly variable in their review and evaluation practices. The submitter may receive a comment on his/her original letter of submission that the manuscript is accepted or rejected, or the editor may like the style of the article, but suggest numerous changes in both content and style. One major advantage of the trades is speed of response. If things do not happen within a short period, the author may assume that the submission is lost, routed to another editor, or was unacceptable. If in doubt, call the editor. Business people are phone oriented.

Publishing Textbooks

A teacher is likely to be a good judge of the textbook market for his/her subject area. Teachers have a pretty good idea of the market for a course that they teach because they see the number of students that take the course and have contact with colleagues who teach similar courses. One would think that any major textbook publisher would have some figures on the sales of different texts in an area that would provide a fairly accurate picture of the market. Not true! A browse through the textbook section of a major university's bookstore will provide a better idea of the market than most publishers have. Publishers tend to be conservative and will stick with proven sellers even when it is clear to the textbook author that a more progressive approach is warranted. In any case, if the author does not have a completed work to submit, publishers will request a proposal from the prospective author which includes a market analysis.

Proposal Requirements

A proposal for a textbook is fairly standard. Some publishers have their own guidelines for specifics, but a prospectus, a table of contents, a sample chapter, and a recent vita will almost certainly be required.

The Prospectus should contain the following sections:

THE PROJECT	A general description of the text and its market.
OBJECTIVES	What is the point of the text? What is the level of the text? Why is it different from existing texts?
FEATURES	List the features that are creative and original that distinguish your proposal.
MARKET	Describe the courses that would use your proposed text in academic settings, proprietary schools of business, and education and training in an organization.
COMPETITION	List all of the competitors to your proposed text and briefly describe why they are inferior.
PHYSICAL	Describe the type of text, e.g., hardcover, 800 pages, 22 chapters, with about 15 illustrations and figures per chapter.
SUPPLEMENTAL	List user's manuals, instructor's manuals, student workbooks, testbanks, overheads, etc.
SCHEDULE	Describe how long and in what sequence you plan to complete the project.

Textbook Reviews

All publishers will send prospective publications out for review, including the prospectus, table of contents, and sample chapter. The completed textbook drafts will be reviewed at least once by a number of reviewers selected by the publisher. These reviewers are contracted by the publisher and they receive remuneration for reviewing prospective publications. The going rate is about $50 per chapter.

Some publishers place great emphasis on the reviews and require the author to make the changes suggested by the reviewer. Others simply provide the reviews and request the author to consider them. However, it is not feasible for anyone to actually check author changes. Copy editors will suggest changes to the author during the publication process. If an author wishes to argue, much time can be spent over minor syntax changes.

Contract Considerations

If the publisher likes the proposal, the author is offered a standard contract. The following are typical items of concern:

Copyright: The publisher gets the copyright. The author can get it back if the work is not published.

Timeframe: The contract states what the author(s) will deliver in terms of number of words, figures, graphs, etc. on what date. (They usually figure about 500 words to a page). Given normal circumstances, a person can produce about 7-10 pages per week. This means that a typical 400-page book can be produced in about one year, assuming that the textbook is the primary activity. If the author has teaching and other responsibilities, then this timeframe must be increased. Also, unexpected illnesses or accidents as well as personal obligations, however minor, will negatively impact on the contract timeframe. Obviously a conservative estimate is wise. Unofficial estimates from publishers state that one-third of all contracts are never finished at all, one-third are finished behind schedule, and one-third are completed but many as much as a year late.

Advances: Advances are not part of the standard contract. Advances are written in under special provisions usually for experienced authors who have demonstrated that they can reasonably estimate and meet deadlines for textbooks that have a large potential market.

Royalties: Royalties will vary with the number of authors and the publisher, but fifteen percent (15%) on domestic sales for a single author is possible. Two first-time authors may split 15%. The other areas such as foreign sales, book clubs, and others are standard. Royalties are computed on the sales as reported by the publisher. Publishers pay royalties annually or semi-annually. For textbooks, an author can expect the first royalties one year after the book goes on the market. The second year sales may be much less. If the book has poor sales, the publisher will not request revision and royalties in the third and later years will be small. If the book is successful, revision will be requested approximately two years after the copyright date. Royalty payments are reported to the IRS. Since there is no withholding on royalty payments, it is a good idea to allocate the appropriate amount (e.g., 30%) for income taxes. If a book is successful, making an estimated tax payment on royalties can avoid later penalties.

The Production Process

When the book reaches the production stage, the author goes through several "hurry up and wait" episodes. Pages arrive by express mail with instructions to proof them immediately and express them back. Publishers are under a time constraint once a book is in production, but seem to work on a schedule that mystifies most authors.

The ancillaries (teacher's manual, workbook, etc.) that accompany a text may be written by the author(s) or contracted out to another party. If the author has this responsibility, he/she will find that the publisher has little concern with the content of these compared to the textbook but will expect them to be completed very, very quickly.

Finally, the author is expected to provide the index although this may not be explicitly stated in the contract. If the author is unable or unwilling to do the index, then the publisher will have it done by a professional indexer at the author's cost. Word processors today can do the indexing with some acrobatics, so an author can do the indexing after receiving the page proofs with page numbers.

Impact of Technology on the Publication Process

The author today should surely take advantage of computer hardware and word processing software. Of course, an author can draft a text on yellow legal pads and have a secretary type it up (or enter it into a word processor), and there are people who do this. Handwriting is a waste of time and creates enormous difficulties in reviewing, editing, indexing, and other functions associated with textbook writing. The author who purchases the latest computer hardware with the latest version of the desired word processing software and the latest model laser printer will not regret the investment. However, it is not wise to upgrade hardware or software while in the process of writing. Upgrades today are no longer a simple matter of loading a few disks and switching a few components while completing the last chapter is no time for an author to find out how incompatible a particular hard/software combination is.

Most publishers will ask for the manuscript in a standard format with a standard font like Courier 10cpi/12pt, double-spaced, with wide margins. While this makes it easy for the editor to read, mark, and compare, it makes the manuscript appear crude and amateurish to reviewers. Therefore, when submitting the preliminary proposal as well as the textbook chapters, make the material look as close as possible to the printed page. The reviewers and others will find your material easier to read and more attractive, and the formatting can be removed if the publisher insists.

Many journals and major textbook publishers suggest or require submission of materials on disk in a standard word processing format such as WordPerfect or Word. Most popular word pro-

cessors have conversion capabilities to other popular formats. Although all major publishers now use a digital format for production, editors still require hard copy from authors.

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Appendix A

Explanation of Review Method

Refereed (blind) - Style sheet states that journal is refereed and manuscripts are blind reviewed.

Refereed (peer) - Style sheet states only that manuscripts are refereed and reviewed.

Peer-reviewed - Style sheet does not state that journal is refereed but does have a review process.

Editorial Board and Trade - Review is by members of an editorial board or the review process is not clearly stated and manuscript selection is presumed to be by an editor and/or an editorial board.

* Publications marked with an asterisk have not been verified for 1994.

Publication	*Review Method*
*Academy of Management Journal	Refereed (peer)
AERA Journals	All refereed (blind)
The American Educational Research Journal	
Educational Evaluation and Policy Analysis	
Educational Researcher	
Journal of Educational Statistics	
Review of Educational Research	
*Arizona Business Education Journal	Editorial Board
ABC Bulletin	Refereed (blind)
Balance Sheet	Trade (editor)
Business Education Digest	Refereed (peer)
Business Education Forum	Peer-reviewed
*California Business Teacher	Editorial Board
Clearing House	Editorial Board
College Teaching	Refereed (peer)
*Data Base (South-Western)	Trade (editor)
Delaware Business Journal	Refereed (blind)
Delta Pi Epsilon Journal	Refereed (peer)
DPE Instructional Strategies	Refereed (peer)
*IMC Journal (Information Mgmt. Congress)	Trade (editor)
Information Resource Management Journal	Refereed (peer)
IVA Progress	Refereed (blind)
Journal of Business	Refereed (peer)
Journal of Business Communications	Refereed (blind)
*Journal of Career Planning & Employment	Editorial Board
Journal of Computer Information Systems	Refereed (peer)
Journal of Education for Business	Refereed (blind)
Journal of End User Computing	Refereed (blind)
*Journal of Management in Practice	Editorial Board
*Journal of Studies in Technical Careers	Refereed (peer)
Journal of Vocational Behavior	Refereed (peer)
The Kansas Business Teacher	Editorial Board
KBEA Journal (Kentucky Bus. Ed. Assoc.)	Refereed (peer)
Louisiana Business Education Journal	Refereed (blind)
*Management World	Trade (editor)
Mid-American Journal of Business	Refereed (peer)
*MBEA Today (Michigan Bus. Ed. Assoc.)	Editorial Board
Modern Office Technology	Trade (editor)
NABTE Review	Refereed (blind)
NABTE Bulletin (appears in Bus. Ed. Forum)	Refereed (blind)
*New Jersey Business Education Observer	Editorial Board
The Office	Trade (editor)
Office Systems	Trade (editor)
OSRA Journal (Office Systems Research Assoc.)	Refereed (blind)
*Ohio Business Teacher	Refereed (peer)
Records Management Quarterly	Trade (editor)
Research in Higher Education	Editorial Board
Secretary	Trade (editor)
SIEC (International Review for Bus. Educ.)	Editorial Board
*TBEA Journal (Tennessee Bus. Ed. Assoc.)	Editorial Board
Today's Office	Trade (editor)
Vocational Education Journal (American Vocational Educ. Assoc)	Editorial Board
*Virginia Business Education Journal	Refereed (peer)
WordPerfect Magazine	Trade (editor)
*Work & Occupations	Refereed (peer)
*Women in Business	Editorial Board

Appendix B

Manuscript Scenario

11/01/84	While collecting articles on systems analysis and office automation, I noticed a merging of the fields and began a project to investigate this integration.
08/08/85	Manuscript, "Office Automation and Systems Analysis" completed and submitted to the NABTE Bulletin.
08/21/85	Thank you for submitting...
12/03/85	Editor says that "...difficult task, space limitations, fine manuscript, cannot publish, suggest you consider submitting to another professional journal."
12/08/85	Submit to Journal of Education for Business.
01/21/86	Form letter received. "...sorry manuscript has not been accepted ..."
02/02/86	Updating and rewriting some sections. Submit to OSRA Journal.
03/03/86	Letter of receipt and sending out for review.
05/05/86	Mixed reviews, serious revisions suggested. Asks for plans.
05/12/86	Plan to address all of the reviewer comments sent. Serious revisions begun.
05/19/86	All revisions completed, sent to OSRA Journal.
06/04/86	"After careful review,...reject...seems to be a superficial, peripheral overview."
07/01/86	Submit to Modern Office Technology (MOT) with some updates.
12/15/86	"Returned with form letter. "...unable to use it in the near future...have any future stories ... be glad to review them." - enclosed their editorial schedule.
02/24/87	Rewrote manuscript - used training aspect involved in the move to office automation. Submitted to MOT as "Retraining of the Workforce."
03/09/87	"I read with interest your manuscript... extremely well done--so much so, in fact, that we will be using it. . .in our May 1987 issue."

Appendix C

PIPELINE (Publication Tracking)

*.ART	Title	Act	To	Date
ATMn	Money Machine	sent	Write Fut	01/04/93
		rcvd		01/11/93
		rjct		05/27/93
	(see file)	sent	Blast	07/03/94
CBTESTn	Computer Based Testing	work	T.H.E.	10/20/93
COMTESTn	Micro Testing Security Mgt	sent	J MiSysMgt	11/28/92
		rcvd	(End U Com)	12/14/92
		rjct		05/17/93
		sent	Coll Tchng	05/18/93
		rjct		05/27/93
		sent	J of CIS	05/28/93
		acpt	(Summer 94)	08/31/93
COMUSEn	Computer Use (Carol)	work		03/01/93
		sub1	J of EUCom	06/06/93
		rcvd		06/21/93
		rjct		02/08/94
		sub4	IRMJ	04/13/94
		rcvd		05/23/94
		rev		06/21/94
ELMn	Electronic Mail (Pat)	rev0	Pat	06/05/92
		rev1	Terry	
		sent	Mid Am JofB	09/30/92
		rjct		05/18/93
		rev2	Pat	
		sub3	J of B Comm	09/16/93
		rjct		
		work	rethink	
HOMEn	Working at Home	work		09/12/93
		iter	Norm	09/15/93
MICRORMn	Microcomputer Rec Mgt	work		12/01/93
VIRKNOn	Computer Virus Knowledge	sub1	DPE Journal	08/29/93
		rjct		11/18/93
		sub2	J of CIS	11/28/93
		rjct		01/20/94
		sub3	Jof E for B	01/28/94
		rcvd		04/14/94
	Micro Virus Ignorance	sub4	Coll Tchng	07/19/94
		rcvd		08/02/94

Keys to Effective Research Design: Think First

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Abstract

Researchers should consider the careful examination of background material. Clear delineation of the research purpose and problems and clear definition of the scope and limitations are integral parts of developing an effective research design.

One of the useful tips that business communications instructors pass on to their students is the suggestion that students think before they write. By becoming "expert" about the topic being presented, narrowing the focus, defining the boundaries of effect, and identifying the potential weaknesses in the message being conveyed, a writer can then plan and execute the message more successfully.

The same line of reasoning can be applied a researcher's decisions regarding research design. In producing formal research reports, writers will likely present for their readers descriptions of background information to establish the need for the study, purpose and/or problem statements to focus on the specific task at hand, scope to identify the extent to which the results will apply, and limitations to identify and possibly to minimize the negative effects of potential weaknesses in the project. The better job the writer does in researching and identifying each of these elements of the final product as part of the design phase, the greater the likelihood the design selected will address the research problem at hand.

The suggestion here is simple: Think first; then design the project

Background

The background section of a formal research project can range from a few paragraphs to several chapters depending on any number of factors including the overall purpose of the project and the familiarity of the potential readers with the problem at hand. In all cases, however, its purpose is to tell the reader what he or she needs to know about the issue before reading through the rest of the report.

In preparing a background section, the writer's task is to learn about the issue at hand with both a broad, overall understanding as well as with some depth of understanding as well. The writer then decides which elements of his or her degree of understanding needs to be transmitted to the reader.

Just as it is important for the writer to understand the background surrounding the content of the report topic, the researcher also needs to understand the various choices related to research design.

In *A Guide to Business Research,* Charles B. Smith described four basic research approaches as (1) descriptive, (2) experimental, (3) creative, or (4) combinations of one, two, or three.

> **Descriptive research** is fact finding with interpretation and analysis of trends in attitudes, events, and facts in terms of their commonality and potential for prediction. This type of research includes normative survey, genetic, case activity analysis, and historical or documentary methods.
>
> **Experimental research** is the controlled observations of change and development in a situation in which only one circumstance is varied while all other circumstances are held constant. This research includes model building and simulation. It answers the "how" and "why."
>
> **Creative research** involves an analysis of ideas and theories and the production of ideas or objects of aesthetic or cultural value to society. This type of research includes philosophical, critical analysis, theoretical, synthesis, or conceptual methods; and objective creation of art forms. (Smith, p. 34)

Others have described these general categories in terms that are more specific. Padmakar Sapre, in *Research Methods in Business Education* identified five of the more common research designs employed in business education and also described their distinguishing characteristics:

> **Experiments**—involve the manipulation of at least one independent variable cause and effect relationship.
>
> **Surveys**—determine the state of the art; describe current situation through data not available in usable form.
>
> **Ethnographic and qualitative**—observation and study of human activity in its natural setting.

Ex Post Facto—study of variables in retrospect in search of possible relationship; no manipulation.

Historical—integrated narrative of past events; interaction of events, people, and forces. (Sapre, p. 32)

Sapre also identified case studies and action research as additional forms of research that are widely used in business education. Case studies involve detailed investigation and discussion of a single event, subject, group, organization, or phenomenon designed to understand in depth its causes and implications. Action research relates to research into one's own practice.

In designing a research project, the researcher's goal should be to identify the best way to collect the data. The process should result in the design that will measure the key factors in the research decision in the most effective manner. The reasoning behind the selection of a particular research design would likely appear with a description of the selected design in the written report.

The degree of investigation required of the writer before being able to create a useful understanding of the research topic for readers should also be applied to the decision regarding the research design. In addition, the selection of an appropriate design requires an understanding of the information the writer will present in the report sections stating the purpose or problem and defining the scope and limitations.

Purpose and/or Problem

Narrowing the definition of the purpose for conducting the research project and specifically describing the problems that are being addressed will provide the researcher with guidance in choosing an appropriate research design. Smith suggests that "'purpose' connotes an aim or objective—a 'why' for tackling the research. . . A 'problem,' however, is the 'what' of research." (Smith, p. 19)

Defining the purpose allows you to identify clearly the goals you plan to achieve through the research activity. For example, an organization may question why it has a less-than-expected number of minority workers in the organization. Investigating this situation would require the examination of the key elements in both how the organization selects its employees and how potential employees—particularly employees from underrepresented minorities— select the firms they wish to join. Each of these elements might lead to a specific research problem to be investigated.

These more specific concerns are related to defining the problem being addressed. Smith, in addressing the problem confronted by students faced with the prospects of having to identify a research problem to investigate, describes this task as "selecting a manageable portion of an area or topic for study." (Smith, p. 19) In the example from the preceding paragraph, the problem statements help focus the research effort on the key elements that will provide answers to the questions that can then result in improved performance.

The determination of the research purpose and problem should drive decisions of research design rather then having the decision of research design define which part of the larger research topic to investigate.

Scope and Limitations

The expected structure of a formal research report will contain a section that identifies the scope of the project. The scope section (sometimes termed the "delimitations") describes the elements of the issue you—the researcher—have decided to cover. It may also identify the elements you have decided not to cover. Wayne and Dauwalder suggest that after reading the scope, the reader of a research report should be able to answer these four questions: "(1) To whom do the results apply? (2) What factors are being examined? (3) For what period are the results applicable? (4) Are any geographic boundaries present?" (Wayne & Dauwalder, p. 434)

Research reports also typically include a section called "Limitations." Although related to the concepts presented in the scope, the limitations section describes elements of the project and/or process over which you had no control.

> The best word to describe the information in the limitations section is "weaknesses." By admitting and identifying "up front" the weaknesses of the project, you help readers make better decisions about implementing the recommendations. If you do not acknowledge weaknesses, the credibility of the results can suffer. (Wayne & Dauwalder, p. 434)

Throughout the process of developing the research design, the researcher should be constantly evaluating the weaknesses of the data collection and evaluation procedures that may appear in any number of elements of the project. Whether these potential weaknesses appear in the ability to measure the key elements of the decision, the process of sampling, the environment surrounding the data-collection method, or any other factor, knowledge of the presence of a potential weakness may lead to a modification of the procedure to eliminate or at least to lessen the negative effects of a potential weakness.

The research design selected for data collection must provide the best avenue for obtaining the information essential to making the research decision. Identifying (a) the boundaries of the project that will be described in the scope section and (b) the potential weaknesses and making adjustments to eliminate them or at least to lessen their effects permits (c) the development of a research design that serves best in accomplishing the research task.

Conclusion

Too often, research projects are developed by deciding first on a general topic area, then allowing the decision of a particular research design to drive the process of clarifying the purpose, identifying the specific problems, and setting the research boundaries. The weaknesses of the project then become a result of the process that are either later identified or explained away.

By thinking through the formal report elements of background, purpose and problem, scope, and limitations prior to the selection of a research design, the researcher allows the research question to drive the research process.

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An Overview of Qualitative Research Concepts

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Abstract

Research methodologies that require the quantification of data have been used extensively by business educators. However, some problem areas in business education cannot be addressed through quantitative research methods. Also, the detailed interviewing and observation techniques of qualitative research may provide valuable insight into certain aspects of some quantitative research studies. This paper provides an overview of qualitative research concepts which may help researchers determine whether qualitative procedures would be useful in a particular investigation.

Background

The focus of this paper is on the basic considerations involved in qualitative research studies. The overview presented here will serve as a foundation on which to develop research proposals for problems related to the field of business education and specifically to the topic of the Delta Pi Epsilon research seminar.

Although definitions and descriptions of qualitative research have varied through the years, Denzin and Lincoln (1994) note that qualitative research literature seems to have agreement on the following general definition of what qualitative researchers do:

> Qualitative researchers study things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them. Qualitative research involves using (interconnecting) a variety of methods for collecting empirical data that pertain to routine and problematic aspects of individuals' lives.

Miles and Huberman (1994) identified the features that recur in qualitative inquiries. As noted below, these features pertain to the procedures qualitative researchers follow:

1. **Conduct the study through an intense and/or prolonged contact with a "field" or life situation.** These situations are typically . . . reflective of the everyday life of individuals, groups, societies, and organizations.

2. **Gain a "holistic" overview of the context under study.** Obtaining this overview is the goal of the researcher; it includes the logic, arrangements, explicit and implicit rules involved in the context of the study.

3. **Capture data on the perceptions of local actors "from the inside."** Capturing data is done through a process of deep attentiveness, of empathetic understanding, and of suspending or "bracketing" preconceptions about the topics under discussion.

4. **Maintain themes and expressions in their original forms.** The researcher may isolate certain themes and expressions that can be reviewed with informants, but they are not separated from their context.

5. **Deduce explanations of the ways people in particular settings act.** A main task is to explicate the ways people in particular settings come to understand, account for, take action, and otherwise manage their day-to-day situations.

6. **Base interpretation on sound rationale.** Many interpretations of the material are possible, but some are more compelling for theoretical reasons or on grounds of internal consistency.

7. **Recognize the researcher is the main "measurement device" at the outset of the study.** Relatively little standardized instrumentation is used at the outset of the study.

8. **Perform most of the analysis with words.** The words can be assembled, subclustered, broken into semiotic segments. They can be organized to permit the researcher to contrast, compare, analyze, and bestow patterns upon them.

Miles and Huberman (1994) note that even though the preceding items are considered a "core" of recurring features, they have been used differently at various times in the history of qualitative research.

Although the preceding information is but a brief sketch of what qualitative research is, this overview will now focus on the considerations involved in designing a qualitative research study. In the next section, research design components are listed and specific considerations that apply to qualitative research are presented for each component.

Designing Qualitative Research Studies

The following overview of planning qualitative research is based on an adaptation and integration of material presented in texts by Glaser (1978), Marshall and Rossman (1989), Miles and Huberman (1994), and Bogdan and Biklen (1992).

Design Strategy

The researcher should be able to justify the use of qualitative research procedures for the specific problem being studied. Ordinarily, the justification will focus on the need to do research which involves one or more of the following:

> It cannot be done experimentally for practical or ethical reasons.
>
> It is focused primarily on processes.
>
> An exploration of why policy or practice do not work is the major concern.
>
> There is a need to study "real" goals and objectives in a context setting as opposed to "stated" goals and objectives.

The researcher should be aware of potential bias and identify his or her biases with regard to the study. It is obvious from the features listed previously, that many aspects of qualitative research involve decision making which must be done by a researcher who brings appropriate experience and other qualifications to the study.

Qualitative researchers usually begin a study on the basis of observations, dilemmas, and questions that arise in their "real world" experiences. On the basis of intuition or creative insight, logical analysis, and the study of related literature, the researcher defines the research question. Qualitative research proposals should meet the basic criteria required of quantitative research studies (e.g., will it contribute to knowledge and will it be significant for policy and practice applications?). In addition to selecting a topic that involves salient issues, consideration needs to be given to how accessible subjects and sites are. Obtaining permission and cooperation from intended subjects may require a great deal of time and negotiation. Ethical matters regarding the privacy rights of participants and disruptions in work environments are concerns that need to be considered, too.

Research design strategies as used here refer to the overall approach that will allow the researcher to gain a thorough and accurate understanding of the situation and to do so with maximum efficiency in terms of monetary cost, time, and effect on participants in the study. Although a classification of design strategies could be done in several ways, basic design strategies can be classified as **case studies** and **multisite studies**.

Case Studies. Case studies include individual life histories, historical organization case studies, and observational case studies. Selection of a case(s) should be done on the basis of what is being studied. Once a case has been selected, decisions regarding internal sampling and time sampling--with whom to talk, when to observe, which documents are reviewed, etc.--must be made. These decisions should be made with a view to the purpose and context of the research. A completion point for data collection is a necessity for a case study. Otherwise, since changes occur continually in the setting of a case study, it would be possible to see frequently new aspects that could cause a refocus of the purpose or just simply cause data collection to go on indefinitely.

Multisite Studies. Multisite studies are generally more complex than case studies. The purpose of multisite studies is usually focused on theory development. The approaches to multisite studies include "modified analytic induction" and "the constant comparative method."

The following example from Bogdan and Biklen (1992) illustrates the "modified analytic induction" approach. This illustration focuses on the experience of a researcher (Jonah Glenn) who wants to determine why some teachers do a better job at teaching than others.

> . . . He starts his study with an indepth interview of one teacher whom someone has recommended as particularly "effective." He has a long, open-ended, tape-recorded discussion with the teacher. He encourages her to talk about her career, her thoughts about teaching and how they have changed over time, and about the question of effectiveness.
>
> During the interview, the teacher describes in detail her disillusionment during her first few weeks of teaching when her optimism (concerning what she thought she could accomplish, her plans about how she would conduct herself, and the nature of her relationship with students) confronted "the reality" of her new job. A teacher for twenty years, she describes a variety of issues: the ups and downs of her career, the changing definitions about her role, some of her first teaching experiences, the relationship of her work to her personal life, and what a good teacher is all about for her. In addition, she discusses schools she has taught in and how particular aspects of them contributed to her satisfaction, as well as to her performance in class. She describes her current position and evaluates it in relation to her perceived effectiveness. As a supplement to the interview, Jonah visits the teacher's school and observes her in action.
>
> From that initial interview and observation, Jonah Glenn develops a loose descriptive theory of teacher effectiveness. . . . After Jonah has sketched out his theory, he

picks a second teacher (recommended by the first teacher) to interview.

Jonah continues to pick additional teachers to interview on the basis of recommendations of interviewees; and after each interview, he modifies the theory to fit each new case. After a few interviews the selection of interviewees is made on the basis of finding examples of negative cases--teachers who Jonah thinks will not fit the model he is developing. Jonah continues to test and refine his theory until he believes he has a theory about effective teachers.

An example of the "constant comparative method" (as explained by Bogdan and Biklen, 1992) begins with a researcher who has no specific topic in mind except she (Mary Schriver) is interested in teachers. She obtains permission to observe in the teachers' lounge. After a few days of observation in the lounge, Mary decides to concentrate on collecting data pertaining to "gossip." She gets to know teachers and continues to observe in the teachers' lounge and accompanies them to other places both in and out of school, while continuing to make observations. She examines the data gathered and develops a theory of "people talk in schools." The steps involved in the "constant comparative method" are identified by Glaser (1978) as follows:

1. Begin collecting data (code and rework the data as it is collected to begin the development of a theory and the categories of focus referred to in Step 2)

2. Determine categories of focus by looking for key issues, recurrent events, or activities in the data

3. Collect data that provide many incidents of the categories of focus to become aware of the dimensions of the categories

4. Write about the categories by describing and accounting for all the data gathered and the new incidents being observed

5. Work with the data to determine basic social processes and relationships and begin to develop a theory model

6. Proceed with sampling, coding, and writing as the analysis focuses on the core categories

Regardless of the specific strategy used, the qualitative researcher, must weigh many considerations in determining which data collection methods to use. An overview of these considerations is presented in the following section.

Methods of Collecting Data

Qualitative data usually take the form of words that are based on observation, interviews, or documents. The data are gathered at or near a given setting for a sustained period of time. Thus, qualitative data must be "processed" by editing, transcribing, typing, etc., prior to further analysis. This processing is considered part of "data reduction," the activities through which data are selected, focused, abstracted, and transformed so they are applicable to the specific problem. Data can then be further analyzed in ways that contribute to drawing conclusions. Although not discussed in this paper, there are many complex issues associated with processing raw qualitative data. The researcher must exercise care to avoid misinterpretation in ascribing meanings and intentions to actions observed. In fact, the strengths of qualitative data depend on the competence with which they are processed and analyzed.

A variety of data collection techniques may be drawn on in qualitative research studies. Marshall and Rossman (1989) identified the following techniques for use in qualitative research: interview, participant observation, questionnaire, film, street ethnography, psychological techniques, proxemics, kinesics, ethnographic interviewing, elite interviewing, historical analysis, life history, content analysis, and unobtrusive measures. Research literature provides a great deal of information about these techniques. The qualitative researcher should select techniques on the basis of an assessment of their strengths and weaknesses as they relate to the purpose and nature of the research study being conducted.

Methods of Analyzing Data and Drawing Conclusions

Because quantitative data are word descriptions of actions as they occur in natural settings, any quantification of them should retain the context of the setting. Miles and Huberman (1994) describe qualitative analysis as "consisting of three concurrent flows of activity: data reduction, data display, and conclusion drawing/verification. In their overall comments on these activities, they note that "data reduction" refers to the processing of data as it is initially collected to transform it into written-up field notes or transcripts. As data collection continues Miles and Huberman (1994) note that further data reduction occurs through "writing summaries, coding, teasing out themes, making clusters, making partitions, and writing memos." These activities lead to the development of "data displays," which are organized, compressed assemblies of information that permit conclusion drawing and action. Data displays may take the form of matrices, graphs, charts, and networks. Obviously, the procedures and logic involved in the creation of these displays are very important to conclusion drawing. The references listed at the end of this paper provide helpful guidance in this regard.

In qualitative research studies the researcher is trying to decide what the things being observed mean; therefore, conclusion drawing begins early on. As Miles and Huberman (1994) note, conclusions are "verified" as the analysis proceeds:

> Verification may be as brief as a fleeting second thought crossing the analyst's mind during writing, with a short excursion back to the field notes, or it may be thorough and elaborate, with lengthy argumentation and review among colleagues to develop "intersubjective consensus," or with extensive efforts to replicate a finding in another data set. The meanings emerging from the data have to be tested for their plausibility, their sturdiness, their "confirmability"--that is, their validity. Otherwise we are left with interesting stories about what happened, of unknown truth and utility.

Concluding Statement

This overview is intended to provide a backdrop for thinking about the nature of qualitative research methodology and for reflecting on its applicability to the types of problems confronting business educators.

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Preparing Future Researchers

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Abstract

This symposium was designed to provide information to individuals who are conducting research, or are in the role of advising on the conduct of research. This advising may take the form of directing thesis or dissertation research or of assisting faculty who are neophyte researchers. It was also hoped that the experienced researcher may find some of the information presented here to be useful. Topics include: The Research Component: The Requisite Skills; Selecting a Research Topic; Designing the Research; Analyzing the Research; Reporting the Research; and Problems of Conducting Educational Research.

The Research Component: The Requisite Skills

One of the most productive ways to impact on the research conducted in any field is to improve the preparation of new professionals entering the field. A program to accomplish this purpose may take the form of a graduate program, a institutional faculty inservice program, a professional organization inservice program, a sabbatical program, or just a guide to the aspiring researcher who is seeking to gain skills through a self-help program. Insights regarding the necessary prerequisite skills can be acquired from a number of experienced researchers in a variety of vocational program area in institutions across the United States.

Selecting a Research Topic

Systematic research begins with a problem, and there is hardly a shortage of problems to be studied in business/education. The difficulty is in selecting from among the many available. Most beginning researchers have a difficult time getting started (Where do I look? How do I choose? How can I be sure the problem I select is appropriate and manageable?). They are often surprised to find that this initial stage often takes up a large part of the total time invested in a research project. There is no way to do research until a problem is recognized, thought through, and formulated in a useful way.

Approaches to Selecting a Topic

Numerous approaches to selecting a topic exist. Commonly used approaches are:

Exploring or Expanding Theories. A potential research problem might be to determine the way in which a theory does indeed account for phenomenon observed. This type of research is known as "basic research or pure research" and has as its goal the advancement of theoretical understanding and the formulation of new theories.

Applying Theories to Practice. Applied research involves applying theories to actual practice in order to see which theories and practices are most effective. Action research is more specific form of applied research which focuses on examining ways to improve the conditions in a specific setting.

Resolving Conflicting or Contradictory Findings of Previous Research Studies. Through review of the literature, researchers often find research studies which disagree on correct courses of action. Sometimes two researchers study the same problem and come up with diametrically opposed findings. The original research studies may have omitted some elements important to the findings that could be the basis for another study.

Correcting Faulty Methods in Previous Research Studies. Sometimes in reading a research study, one discovers that the researchers may have omitted or overlooked the influence of an important variable, used the wrong design, selected subjected in a way which produced the results obtained, or made any of a variety of other errors. The study could be reconducted correcting the errors.

Resolving Conflicting Opinions. Sometimes opinions/beliefs as stated in professional journals are unfounded. Often topics of

disagreement are discussed extensively, yet no one seeks to use the scientific method to resolve the conflict. These situations offer fertile areas for research studies designed to resolve the disagreements.

Reviewing Recommendations from Previous Research Studies. Outcomes of one piece of research very often lead to new questions. A productive way of extending studies is introducing new variables or further control and for detecting interaction effects between variables.

Reviewing Previous Research Studies for Applicability to Other Cultures. Conclusions from research done in a given culture cannot automatically be applied to other cultures. This is one reason why in recent decades considerable emphasis has been placed on cross-cultural research.

Studying Actual Practice. Using action research allows the researcher to look at a current situation and ask what could be done to make it better. While some problems from actual practice may be too narrow in scope for research, many questions about improving practice can lead to interesting research studies of personal significance to the researcher. Technological changes and curricular developments are constantly bringing forth new problems and new opportunities for research.

Theories or Procedures Encountered in Other Fields. Such theories or procedures might be adapted to apply to business/education. Often movements that originate outside our profession lead us to new path of research.

Criteria for Determining is a Research Problem is an Appropriate One

Once the researcher identifies one or more related topics in a problem area, each should be evaluated to determine if it is appropriate for the researcher's interests, skills, and situation. Such questions as these should be addressed:

a. Is the problem of interest to the researcher?

b. Does the researcher have the necessary resources (especially time and money) to complete the study?

c. Does the researcher posses the ability, knowledge, and training to carry on the study?

d. Does the study make a contribution to the body of organized knowledge in business/education in general? Is the problem significant? Is the problem a new one? Is the answer already available?

e. Is this the type of problem that can be effectively solved through the process of research? Can relevant data be gathered to test the theory or find the answer to the question under consideration?

f. Is the research problem actually researchable? In order for a topic or problem to be researchable, there must be some observable and measurable variable(s). There must also exist currently an instrument and/or process capable of measuring these variations, or the researcher must be capable of designing one.

g. Is the research problem trivial or overworked?

Perhaps one of the most difficult aspects of doing research is that of narrowing down a broad interest into a researchable topic. A common error in writing the problem section is to paint the picture in too grandiose or too general terms. Frequently, the problem is so broad the investigator cannot possibly solve it even if given all resources available. A seasoned researcher knows all the world's ills cannot be solved and limits the problem.

Role of the Faculty Advisor/Mentor

Some advisors prefer not to translate a specific, well-defined topic to study, but rather to send the student to research the literature on a very broad topic and to get the student to pick a subarea for the research. Other faculty will help students narrow the topic. This is done through persistent questions, trying to force researchers to play an active role and making sure they are really interested in the topic. Learning to focus a study is a skill. Novices often believe that only by encompassing large pieces of a problem can they avoid triviality. One of the most important functions of the research advisor/mentor is to help students clarify their thinking, achieve a sense of focus, and develop a manageable problem from one that may be too vague and complex.

Foreign students in humanities and social sciences, seem to encounter more difficulties than their American counterparts when it comes to selecting a topic and narrowing it down to manageable proportions. Language handicaps which persist, earlier academic experience which emphasized knowledge-gathering, rather than problem-solving, cultural norms which dampened initiative and created a sense of awe and unapproachability about professors--all of these are likely to create stumbling blocks for foreign students as they seek to embark on research.

Suggestions For Novice Researchers

a. You may have an idea or particular area of interest you would like to explore--you may have several ideas, all equally interesting. Conduct an initial computer search to see how much has been written, talk to colleagues and fellow students. Talking through problems and possible topics with colleagues is an essential stage of any research plan. Their views may differ from or even conflict with yours and may suggest alternative lines of inquiry. They may be aware of sensitive aspects of certain topics which could cause difficulties at some stage or know of recent publications which are not listed in library database (Bell, 1993).

b. Don't well on the obvious in support of the problem. Find balance between completeness and brevity.

c. Don't just select the first problem you find as your research problem.

d. Begin with a research problem, not a procedure or a sample. A frequent error committed by novice researchers is to begin with a statistical procedure or instrument and then search for a problem to fit it. Rather, start with a perceived problem or a gnawing question and work to evolve it into an interesting research problem.

e. Be systematic and complete in reviewing the related literature. This does not mean just having an ERIC search conducted or reading Psychological Abstracts. It means continuous reading, examining, looking for facts, data, relating to the problems, and supplementing computer searches with manual searches.

f. Be exact and complete in defining the research problem. An inexactly stated problem seldom leads to a well-done study. It leads to confusion and disarray.

g. Plan ahead and take the time needed. Frequently, the pursuit of a degree or the requirements of work tend to press heavily to complete a research project and to cut corners. Explicitly plan all aspects of the research. A good study takes time to conduct. It requires a thorough research base founded in the review of literature. It requires careful gathering and analysis of the data. Try to plan the sequence and time requirements of the parts of the study. Remember that a well-done study is a source of pride and a symbol of the researcher's ability; a poorly done study is just a record of time wasted. Often the difference is the patience and perseverance of the researcher. Research is like a fertilized egg; you let incubate and then hatch; you don't just crack it open because you're impatient (Cates, 1985).

Designing the Research

Once the research topic is selected and various aspects of its merits explored, the researcher must begin to consider how to design the research study. A variety of activities can start this process. They include conducting a review of literature related to the topic, examining various theoretical models related to the topic, and generating potential research questions that the researcher wants to answer. The experience of the authors have been that the last of these, generating research questions, has proven most useful.

For example, assume that the topical area selected is "computer mediated communication (CMC) used for instructional purposes." Questions might include:

Research Question 1. Who is most likely to use CMC for instructional purposes?

Research Question 2. To what extent is CMC used for instructional purposes?

Research Question 3. How has the use of CMC changed instruction in classes of those using it?

Research Question 4. What factors influence the instructor to use CMC in the classroom?

Research Question 5. How do instructors who use CMC gain skills needed to incorporate the technology into their classes?

Research Question 6. How has instruction improved as a result of using CMC?

Research Question 7. How have students benefitted from the use of CMC as part of their instruction?

Naturally, this list could be greatly expanded. These questions are suggested as a starting point. Once the list has been compiled, a next step is to identify respondent groups that can provide answers to the questions. For the first six questions, a logical group would be university faculty at institutions heavily committed to CMC use. The respondents could be similar faculty, such as business faculty, at a number of institutions or all faculty at a given institution. At this stage the researcher must start to think of problems of accessibility to the study participants and their likelihood of participating. If business faculty at a number of institutions are to participate, how will they be identified and contacted? Further, concerns related to defining the participant population and possible sampling procedures need to be explored.

Concurrently with thinking about potential participant groups, the researcher needs to review the questions one by one, asking what information can the participants provide that will answer each question. For example, the faculty groups could certainly indicate the extent they use CMC for instructional purposes (Question 2) and provide information about themselves (Question 1). For the first six questions, the faculty groups identified above appear to be able to provide input related to the questions. Research Question 7, will require input from students.

Starting with Research Question 1, the researcher will quickly realize that it needs to be more carefully defined. Does it imply that demographic information, including age, sex, rank, and so forth, is sought; or does it imply that input from participants regarding their facility and confidence with computer technology is sought? Obviously, the second of these is more relevant; thus, the question is now recast as follows:

Research Question 1 (revised). How does facility and confidence with computer technology impact use of CMC for instructional purposes?

The next step in assessing the questions, assuming that data can be collected to answer them, is looking ahead to determine if the answers to them will be of any value for practical application as well as to setting the stage for further research. In this case, determining how facility and confidence with use of CMC for instructional purposes appears to be of substance. Once it is answered, information becomes available as to who is likely to use CMC for instructional purposes based on skills related to its use. Further, information as to who is not likely to use CMC becomes available. Thus, if use of CMC in instruction is assumed to be worthwhile, some basis exists for suggesting how to get nonusers to become users.

Now that the question appears to be worth answering, the researcher must start to think of ways to measure the extent of facility and confidence the participants have developed with CMC. Here brainstorming takes place as well as searching related literature to determine if other researchers have measured these two variables in any way.

Looking at the second question "To what extent is CMC used for instructional purposes?" allows the researcher to establish a basis for a comparison. Once measures of facility, confidence, and extent of use are in place, outcomes for the two questions can be compared, leading to the hypotheses that "Extent of CMC use for instructional purposes is related to degree of facility and comfort with its use." Stated as a null hypotheses to establish a basis for statistical comparison it becomes "No relationship exists between degree of facility and comfort with CMC use and extent it is used for instructional purposes."

Moving to Research Question 7, the researcher confronts a new situation. Answers to the first six questions provide no insight as to whether students benefit from the use of CMC for instructional purposes. This question requires input from a whole new participant group and would most likely expand the research effort beyond a manageable scope. The researcher may want to explore this question as was done for the questions above and determine if this question will drive the study rather than the ones based on faculty input. If the researcher decides to stay with the faculty input and the first six questions, then substantiating the benefits of CMC as part of instruction must be shown to be available from the work of other researchers. Thus, the "benefit to students of using CMC in instruction" becomes an underlying assumption of the study--one that can most likely be supported through the review of related literature.

Some researchers may opt for a different route than the generation of questions and, first, look for a theory to be tested. Using the question approach does not eliminate using a theory base; rather, it focuses first on what the researcher wants to know. As the related literature is searched, applicable theories related to "resistance to change" and "adoption of an innovation" can easily come into play. Thus, using the question approach drives the literature search. Further, this approach avoids the problem of undertaking broad-based literature searches that often have little relevance to the research questions under consideration. Also, working from the research questions can help, as noted previously, in locating related measurement instruments in the literature.

The first six research questions lend themselves to the collection of descriptive information of both quantitative and qualitative nature. For Research Question 1, the study participants might respond to a question asking them to rate on a scale of 1 to 7, with 7 being the highest, extent of confidence they have with using CMC technology. Qualitatively, they might list experiences they have had when attempting to use CMC in their teaching that have led to positive experiences and those that have lead to negative experiences.

Turning again to Research Question 7, the one related to benefits to students, an entirely different type of study can be designed. In this case, actually going to classrooms and testing students who have and have not been exposed to CMC as part of their instruction could serve to answer the question. This question lends itself to a quasi experimental design that would test the null hypotheses: "No differences exist in performance of students who have been instructed via means of CMC and those who have not." This research, however, presents a whole new set of problems including (a) How can comparable classes be identified? (b) What information will serve as the basis for the test? (c) How will validity and reliability of the test be established? (e) How will threats of internal and external validity to the research be controlled?

For both of the potential studies addressed here the researcher must answer the "So what?" question based on various possible outcomes. Assume in the first study that no relationship exists between facility and confidence in the use of CMC and extent of its use by participants for instructional purposes. What might this outcome indicate? For a relationship to exist, the scores for the variables must be spread across a range. Possibly, none of the participants use CMC extensively for instructional purposes, thus establishing a relationship is impossible. As another example of answering the "So what?" question, assume in the study focusing on benefits of CMC to students that data analysis reveals that students exposed to CMC as part of instruction actually score lower on a test measuring what they have learned than students in classes were faculty do not use CMC. Assuming all other factors between the classes of the students being compared are equal, or have been controlled for in some way, the explanation may lie in amount of time spent with CMC technology rather than focusing on actual content of the course.

This final step of explaining the meaning of possible outcomes before undertaking the research is particularly helpful in envisioning the entire process of the study. Further, it quickly helps the researcher to focus on questions that are likely to produce outcomes of substance.

To review, ten steps to follow in designing research and in helping others to do so are enumerated here. A word of caution, however, is in order. The steps should not be thought of as

strictly sequential. Actually, they are more of a ladder that the researcher goes up and down as the thinking process of designing a research study evolves.

Step 1. Generate research questions related to the topic.

Step 2. Group the questions according to participant groups that can provide input related to them.

Step 3. Identify potential study participant groups.

Step 4. Revise the questions to eliminate ambiguities and examine them as to usefulness of information that will be collected for them.

Step 5. Select for further examination questions that interrelate and allow for comparisons and contrasts.

Step 6. Review the literature for three major purposes:
a. To locate theories related to the questions,
b. To locate measurement instruments,
c. To locate other related research.

Step 7. State hypotheses, and their corresponding null hypotheses, that can be tested through quantitative data.

Step 8. Consider how validity and reliability of measurement instruments will be established.

Step 9. Examine usefulness of collecting qualitative data, which is often needed to support findings from quantitative data.

Step 10. Think about possible outcomes and how they might be interpreted.

Analyzing the Research

Data analysis is a part of the overall research process that is often given inadequate attention. In fact, many potential researchers avoid involvement in the research process because of their desire to avoid this one activity. There are several reasons that this part of the research process may be neglected and/or avoided. One reason is that many researchers lack expertise in the area of statistics. Another reason that this section of the research process may be neglected is that many researchers/potential researchers feel insecure/uncertain about their statistical capability. Finally, a third potential reason that data analysis might be neglected by researchers is that they just simply find the analysis to be an unpleasant/onerous part of the overall research process.

Prior to examining the factors in selection of the most appropriate statistical test, one must first understand the certain concepts. A dependent variable is the variable in an objective that is used as the outcome measure. It is the primary measurement being taken. Ary, et al. (1990) indicate that the dependent variable is the thing the researcher is attempting to explain or predict or the measurement that is being compared among the various categories of some other measurement. For example in Research question 4 cited earlier, (What factors influence the instructor to use CMC in the classroom?) whether or not the instructor uses CMC would be the outcome measure or the dependent variable. The independent variable is the variable(s) that are used to explain or predict the dependent variable from or the variable that comparisons will be made among its categories. Again, in the example above, the factors which influence the instructor's use of CMC would be the independent variable(s) in the objective. Most typical objectives in educational research will include one dependent variable and one or more independent variables.

In deciding on the most appropriate statistical technique(s) to use in a study, there are essentially three factors to consider. However, prior to addressing these factors one essential antecedent understanding is a knowledge of the various levels of measurement of data. Data collected in research activities may be measured at one of four levels. An understanding of these levels of measurement and an ability to distinguish among the levels is essential in selecting the most appropriate statistical technique(s).

The first of these levels is nominal data. Nominal data is data that is collected in categories where those categories have no logical or clearly identifiable order. An example of nominal data is gender of subjects. One can categorize subjects as either male or female, but there is no meaningful order to the categories. Numbers assigned to the categories are strictly a function of labelling for convenience of measurement. Whether a researcher assigns a "1" to the males in the study and a "2" to the females or just the reverse is determined by personal preference. Another example of a nominal variable would be course taught by a high school teacher. Each subject could be categorized as to their majority teaching area (i.e. Keyboarding, English, History, Industrial Arts, Science, Math, etc.) but the numbers assigned to these categories and the order of the numbers are purely a matter of personal preference on the part of the researcher. In fact, in many cases, the researcher will actually random order the categories or order them alphabetically.

The second level of measurement is ordinal data. Ordinal data is also data measured in categories, however, they are categories that have a meaningful order. An example of ordinal data would be letter grades received by students. When final grades are submitted by teachers in educational settings, students are categorized into five potential groups, "A," "B," "C," "D," and "F." These are clearly categories, but they are also clearly ordered categories. One would not argue that a grade of "A" is higher than a grade of "B," but you can not determine from the categories how much higher. For example, if a researcher collects data from school records regarding grades received in a specific course, the data would logically be recorded as letter grades. If the question arises about two subjects, "Which one had higher achievement in the course," the answer could be eas-

ily determined. If student one received a grade of "A" and student two received a grade of "B," student one with the "A" grade logically had the higher achievement. However, if the question was asked, "How much higher was the achievement of student one than the achievement of student two," the question can not be answered from the available information. Typically, a grade of "A" falls within the range of 94 to 100% and a grade of "B" falls within the range of 87 to 93%. Given this grading scale, the difference between student one and student two could be as little as one point or as much as 13 points. Therefore, one can identify which one was higher but not by how much.

The third level of measurement to be examined here is interval data. Interval data has the characteristic of ordinal data that the measurements can be ordered, and in addition these data have the property that equal distances on the scale represent equal distances in the property being measured (Kerlinger, 1986). Essentially, what this means is that equal differences at various points on the scale represent the same amount of difference in the property being measured. For example, a variable that is typically measured as interval data is achievement as measured by the percentage of correct items on a test. The difference between a student who achieved a 95% on the test and a student who achieved a 90% on the test would be the same as the difference between a student who achieved a 75% on the test and a student who achieved a 70% on the test. Many of the statistical tests that are used in the social and behavioral sciences are based on an assumption of at least an interval level of measurement.

The fourth level of measurement is the highest level of measurement and is called ratio data. Ratio data has all the properties of interval data, and in addition has the characteristic of having an absolute zero which is meaningful (Kerlinger, 1986). What this means is that a zero measurement on the scale actually represents an absence of that property. A zero score on an achievement test does not necessarily mean that the student has none of the property being measured. It certainly means that zero percent of the items were answered correctly, but there could have been things achieved that were not represented on the test. Therefore, it cannot be concluded that it represents an absence of the property being measured. Examples of variables that are typically measured on a ratio scale of measurement are the number of telephones in a household, number of children in a family, and number of words typed per minute.

With a review of scales of measurement accomplished, the next logical step is to examine the factors in deciding on the most appropriate statistical technique to use. There are essentially three factors to be considered in making this decision. The first factor is the level of measurement of the dependent variable (or outcome measure if variables are not treated as dependent and independent) for the objective. This factor has a major influence on the selection of the most appropriate statistical technique. The dependent variable is the primary outcome measure and, therefore, a statistic must be selected that is appropriate for the level at which it is measured. For example, if the desired analysis is to summarize information with appropriate measurements of central tendency and variability, the variable must be measured at an interval or ratio level if a mean and standard deviation/variance are to be used. If the variable is measured as ordinal data, the appropriate measure of central tendency is a median and the appropriate measure of variability is the semi-interquartile range. Finally, if the variable is measured at the nominal level, the appropriate measure of central tendency is the mode and the appropriate measure of variability is relative frequencies in categories. As an additional example, if the dependent variable is measured as interval data, multiple regression analysis might be a very appropriate data analysis technique. However, if the dependent variable is measured at the ordinal or nominal level, regression analysis would be inappropriate.

The second factor to consider in selecting the most appropriate statistical technique is the level of measurement of the independent variable. This factor should be considered after examining the impact of the level of the dependent variable measurement. There are primarily two types of analyses in which this factor becomes a major issue. One of these is the examination of relationships between variables (correlational analyses), and the other is examination of differences (comparative analyses). In a correlational analysis, the researcher must determine and consider the level of measurement of both the dependent and independent variables to select the most appropriate correlation coefficient to test for a relationship. For example, probably the most frequently used correlation coefficient is the Pearson Product Moment correlation coefficient. To be used appropriately, the level of measurement of both variables must be interval or ratio. If the level of measurement of both variables is ordinal, the most appropriate coefficient is either the Spearman Rank Order correlation coefficient or the Kendall's Tau correlation coefficient. To further demonstrate the importance of this factor, the example can be used of a multiple regression analysis. It was established earlier that the use of regression analysis requires that the dependent variable be measured at the interval or ratio level. However, it should also be noted that the independent variables in a regression analysis must also meet certain measurement criteria. Each variable to be entered into a multiple regression analysis as an independent variable must either be measured at the interval/ratio level or be able to be coded (dummy coding is used most often) to artificially create data for each level of the independent measurement that meets the essential criteria of an interval measurement.

When the analysis is comparative in nature (examination of differences) the analysis seeks to compare the dependent variable among groups of the independent variable measurement. Therefore, the independent variable would need to be measured as categorical data (nominal or ordinal) or the data would be reorganized into categories which would subsequently be used as the comparative groups. Going back to the importance of the first factor (the level of the dependent variable), if the dependent variable was interval in nature an appropriate comparative test might be the analysis of variance procedure. On the other

hand, if the dependent variable was ordinal or nominal in nature, the most appropriate procedure might be the Chi-square procedure.

The third and final factor in determining the most appropriate statistical technique is the research objective to be accomplished. This may seem too obvious to list, but this factor ultimately determines which technique will be selected from those that are appropriate as determined from examination of the first two factors. If the objectives of the study have been well formulated and clearly stated this decision should be relatively easy to make. A few examples would be in order at this point.

If an objective of the study was, "to compare the achievement in introductory keyboarding as measured by GWPM by gender of students," the researcher would examine first the level of measurement of the dependent variable. In this case, achievement in introductory keyboarding as measured by gross words per minute would be at an interval or higher level of measurement. The independent variable, gender of student, is clearly a nominal variable. It is measured in categories and does not have a meaningful order. These first two pieces of information help the researcher to determine statistical tests that could be appropriately used in the study. Some of these would include multiple regression analysis, the t-test, the point biserial correlation coefficient, and the analysis of covariance. Finally, the researcher must look at the specific objective to select the right statistics from among those that are appropriate. In this case, the objective seeks to compare by gender. Since gender is a two category nominal variable (male and female), the MOST appropriate statistic to select for the data and objective given is the t-test procedure.

Another objective might be, "to determine if a relationship exists between achievement in introductory statistics, as measured by final course grade received, and achievement in introductory undergraduate algebra, as measured by final course grade, among doctoral students in business education at XYZ University." In this case, both the dependent (statistics grade) and independent variable (algebra grade) measurements are letter grades received in college courses. Letter grades are an ordinal level of measurement since one can determine that one category is higher than another but not how much higher. Since the variables are both ordinal, and the objective seeks to determine relationship, the most appropriate statistic would be either the Spearman Rank Order correlation coefficient or the Kendall's Tau correlation coefficient. In this instance, either of the two coefficients could be used, however, there is a way to select the more appropriate from these two. If one or both of the variables being examined are likely to have a large number of ties in ordering the subjects, the Kendall's Tau coefficient is the better choice because it is less influenced by the tied ranks. A variable is likely to have a large number of tied ranks when there are relatively few categories in the variable. In this case, both variables are measured as letter grades which have only five potential categories. Therefore, on both variables there will be many tied ranks if the researcher is using an appropriate sample size. The best statistics to choose for accomplishing the objective is then the Kendall's Tau correlation coefficient.

A couple of statistical techniques that are relatively infrequently used in educational research but have a great potential for contributing to the overall effectiveness of summarizing and reporting research activities in the field include the following: (1) Discriminant analysis - This technique is appropriately used when the researcher has a categorical (nominal or ordinal) dependent variable, independent variables that are either interval or can be coded (usually dummy coded) to fit the essential characteristics of interval data, and an objective that seeks to explain or predict the category of the dependent variable which respondents fell or will fall into. and (2) Log-linear analysis (LLA) - This technique is appropriately used when both dependent and independent variables are categorical (nominal or ordinal) in their level of measurement and the researcher wishes to examine not only the influence of the independent variables on the dependent variable but also to examine the interaction effects that may exist among the independent variables. LLA is essentially an ANOVA-like technique that can be used with a categorical dependent variable.

Reporting the Research

After the selection of a topic has been made, after the design of the research has been completed, after the selection of analysis procedures has been made and implemented, then the researcher is ready to begin the process of reporting the research. There are standard format and reporting techniques that need to consider. Other issues include but not limited are: correctly interpreting test results, drawing relevant conclusions, and making meaningful recommendations.

First, The Title of the Report

The title of the report should give a brief description of the content of the study and should be able to stand alone (Silverman, 1982). Suggestions for writing titles include: Limit the title to about 15 words in length (Publication Manual, 1983). Avoid unnecessary phrases that serve only to add length to the title such as "A study of" and "An analysis of" (Moore, et.al., 1986). Keep the language as simple as possible. "Don't use an elaborate word when a simple one will do" (Van Til, 1981, p. 71).

The Introduction

This is where the researcher establishes the importance of the research and why the research was conducted. The writing style should be clear with simple expression, continuity of ideas, and correct grammar. Henson (1984) warns "The most deadly error a writer can make is trying to impress readers through the use of an inflated writing style and ornamental trappings of scholarship" (p.637).

Review of Related Literature

The review of literature is a significant part of the research and should be reported accordingly. The length of related literature will depend on the scope of the research and the chosen outlet for the reporting of the research, e. g. conference, journal. The researcher should cite the relevant works that justify the need for the study and not fall into the trap of reporting all the "interesting and nice-to-know" bits of information that do not have a direct bearing on the study.

Statement of the Problem

The statement of the problem sets the stage for the rest of the report by presenting clearly the boundaries of the research. Although there is not one "right" way to state a research problem, there are at least four characteristics of well-written problem statements.

1. It should identify the variables being investigated (Gay, 1981).
2. It should indicate the relationships between the variables being investigated (Mason and Bramble, 1978).
3. It should identify the target population (Leedy, 1980).
4. It should be stated in its simplest form (Moore, et. al., 1986)

Objectives of the Study

The form taken by objectives in a research report should be based on the nature of the research or the relevant component of the research. Seldom is a study in the social and behavioral sciences limited to one type of research only. For example, most descriptive survey studies will also have one or more objectives to explore relationships. In addition, most experimental studies will also have a descriptive component. Objectives normally take a form based on the type of research as follows. Objectives of a descriptive component and a correlational-exploratory component will normally take the form of questions to be answered. Objectives of a correlational-explanatory component and an experimental component should take the form of research hypotheses to be tested.

Methodology/Procedures

The procedures or methodology section of a report provides the researcher the opportunity to present evidence that the research is valid, reliable, and objective (Moore, et. al., 1986). Specific aspects of the research procedures that should normally be described include those mentioned in the following sections.

Population and/or Sample. The population should be clearly defined and the reason(s) it was chosen stated. How members of the population were identified should be described. If a sample is used, the sampling technique(s) used and why that technique was chosen should be described (Kerlinger, 1973). The sample size used should be noted and the basis for its determination should be described.

Instrumentation. How and/or why the instrument was selected or developed should be described. Procedures used to establish the content validity of the instrument should be presented. This might involve information from previous studies as well as procedures used in the current study if an existing instrument was used. Reliability of the instrument(s) should be reported as appropriate.

Data collection. A sequential presentation of how the data were collected should be presented. This may include response rates and nonresponse follow-up procedures in the case of survey research and treatments used and exactly how they were conducted and administered in experimental type studies. Without these step-by-step procedures, the research could not be replicated (Kerlinger, 1973).

Data Analysis. An explanation of the statistical test(s) used should be provided. It should include why the tests were selected and why others were not selected (Moore, et. al., 1986).

Results

The results section should be directly addressed to the objectives of the study. This section typically includes information presented in both textual and tabular form. Although the two forms of presentation supplement one another, they should each be able to stand alone. According to Ary, Jacobs, and Razavieh (1972, p. 335) the researcher should, ". . . present the data in tables and figures accompanied by sufficient text to point out the most important and interesting findings."

Conclusions and Recommendations

The conclusions and recommendations section of the report involves the researcher's interpretation of the findings of the study (Mouly, 1978). Novice researchers sometime confuse the difference between the findings/results and the conclusions. "A result is the outcome of a test of significance" (Gay, 1981, p. 385), whereas a conclusion is an interpretation of that result/finding especially as it relates to the objectives of the study. Conclusions should be drawn from the results/findings. Overgeneralizing the results is another error commonly committed (Moore, et. al., 1986). According to Gay (1981), "Overgeneralization refers to the statement of conclusions that are not warranted by the results" (p. 385).

In addition to developing conclusions, the researcher should discuss the implications of the results of the study and derive recommendations for both practice and for further research (Mason and Bramble, 1978). Recommendations for practice should offer suggestions for applying the results to the practitioners in the field. Recommendations for further research should suggest the logical "next step" in researching the problem and/or sug-

gest other dimensions of the problem which the researcher has been led by the results to believe are productive areas for study (Moore, et. al., 1986).

Problems of Conducting Educational Research

Conducting research in the educational setting is not without its problems that must be overcome. Some of these problems have been addressed either directly or indirectly in this paper. Others will become apparent as a new researcher becomes increasingly involved in the research process. Your ability to identify and avoid these problems and pitfalls will be enhanced with each successive project you complete. In addition, increasing your involvement as a consumer of research will help you to improve in this area as well. Therefore, do not be discouraged by problems encountered, but rather use one or more of the following techniques to overcome problems you face as you move further into the role of the research practitioner. (1) Read widely and critically in your field and in related fields. Do not restrict your consumption of research to just your immediate field as this has a tendency to unnecessarily restrict your growth. (2) Collaborate with more experienced researchers, and aggressively seek to learn from these associations. (3) Submit the results of your research for critique through conferences and journals in your field and/or related fields. Sometimes this requires the development of a somewhat "thick skin" as your allow your work to be openly critiqued by your professional colleagues, but the benefits in helping you to identify problems in your research and ways to overcome them will far outweigh the disadvantages. (4) And finally, be prepared to acknowledge problems that cannot be overcome up front in your research report as a limitation of the study. This may seem undesirable at first, but remember, damage is not caused by research results where the limitations and problems are acknowledged in the report. Damage can occur, however, if the research is conducted under limiting circumstances and the researcher fails to admit or worse even works to hide these limitations.

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Qualitative Research in Business

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Abstract

Qualitative inquiry is an alternative form of research that can be used by people in business to gain a deeper understanding of a phenomenon being studied. This presentation will outline basic limitations of qualitative research such as validity, reliability, and transferability. Benefits of using qualitative research are discussed including greater interaction with participants, expandable and changeable basis for the study, and a focus on process rather than outcomes. Methodological procedures that may be used, such as naturalistic inquiry, case studies, participant and nonparticipant observation, phenomenology, orientational inquiry, and heuristics are also discussed.

Qualitative Research in Business

Qualitative research involves using an interpretative and naturalistic approach to study experiences in natural settings in an attempt to make sense of and understand the phenomenon in terms of the meanings participants bring to the situation (Denzin & Lincoln, 1994). Qualitative research focuses on practical knowledge rather than theoretical knowledge in that qualitative research does not seek to test theory. Qualitative research seeks to understand the nature of the world, the individual's place in the world, and the range of possible relationships the individual has in that world (Guba & Lincoln, 1994; Hamilton, 1994).

Qualitative research, although often met with controversy, is a valuable research paradigm when the researcher's goal is to learn how people establish order in their world, construct meanings, or how social experiences are created and given meaning (Denzin & Lincoln, 1994; Lythcott & Duschl, 1990). As with any research, there are limitations and benefits of qualitative research as well as a variety of methods available to the researcher.

Limitations of Qualitative Research

Limitations of qualitative research include validity (external and internal), reliability, and transferability. The following sections will discuss each of these limitation and outline techniques that can be used to reduce each.

Validity

Validity in qualitative inquiry depends heavily on the skills and competence of researchers and must be assessed by the interpretation of findings (Merriam, 1988). Miles and Huberman (1984) suggest that validity (external and internal) can be increased by providing detailed descriptions of the settings, participants, events, and processes studied as well as a detailed description of methods and approaches employed to gather and analyze data. Moreover, the validity and reliability of any research depends on the relationship between correctly applied methods, legitimate interpretation of data, and the soundness of the arguments (LeCompte & Preissle; Merriam, 1988).

External Validity

External validity, according to quantitative researchers, refers to the ability to generalize findings to a larger population (LeCompte & Preissle, 1993). Qualitative researchers, on the other hand, rely on *comparability* rather than generalizability. Comparability is the degree to which components of a study are sufficiently described and defined so that other researchers can use the results for comparison to other studies. External validity in a qualitative study may be affected by four factors: *selection effects* created when the group chosen for study are unique and therefore make it difficult to compare with groups found in other studies; *setting effects* created when specific functions of the context under study may not be comparable in other contexts; *history effects* created when past experiences or settings of a specific groups may not compare with other previous experiences or settings; and *construct effects* created when abstract terms, generalizations, or meanings shared across times, settings, and populations are not comparable to another situation (LeCompte & Preissle).

Internal Validity

Internal validity of either qualitative or quantitative research seeks to address the question of the reality of findings (Merriam, 1988). Specific threats to internal validity of qualitative research includes *history and maturation of participants, observer effects, selection and regression, mortality,* and *spurious conclusions* (LeCompte & Preissle, 1993).

History and maturation of participants is a normally occurring event in qualitative research since qualitative research requires researchers to conduct studies in natural settings. These naturally occurring changes involving progressive developments are likely to be included in the study to examine their significance on other participants in the setting (LeCompte & Preissle, 1993).

Observer effects may occur in various ways. Information obtained from participants may represent a single viewpoint or may be shaped by characteristics or relationships with researchers. Observer effects may also be complicated by personal relationships that can develop between participants and researchers (LeCompte & Preissle, 1993). To reduce observer effects, researchers should seek participants who match the variation and diversity of a given population. Researchers can also increase the amount of time spent in a situation to assist in determining the validity of information received from a participant by checking one perspective against others in the same context.

Selection and regression becomes problematic when data cannot be gathered from all participants because there are either too many participants or the social scene is so complex that observation of *all* relevant activities, events, and settings is impossible. To reduce these effects, researchers must take an inventory of subgroups of participants and situations to determine if participants or findings represent an entire setting or only certain circumstances.

Mortality of a participant is possible in any study. However, qualitative researchers often view mortality as a natural occurrence and are not likely to find a replacement for the deceased participant. In fact, the death of a participant may become part of the current research or a topic for future study to examine the effects of the loss on others (LeCompte & Preissle, 1993).

Spurious conclusions can occur when a researcher assumes a relationship exist where there is none or assumes a relationship to be nonexistent when one is present (LeCompte & Preissle, 1993). Spurious conclusions can also occur when a researcher receives opposing explanations from participants. To reduce the possibility of spurious conclusions, the researcher must carefully examine all data for bias or contamination and search for adequate support for any generalizations.

Reliability

Reliability refers to the extent that the same methods of data collection and analysis will produce results similar to a previous study (i.e., replication). However, "this poses an impossible task for any researcher studying naturalistic behavior or unique phenomena" (LeCompte & Preissle, 1993, p. 332). This *impossible task* results from the uniqueness of situations. It is virtually impossible to recreate a unique situation in order to obtain identical results since natural settings are subject to change. Replication may be approximated but is rarely achieved.

Transferability

Transferability refers to the extent to which findings from one study can be applied to another study or situation (Henwood & Pidgeon, 1993). To increase transferability, a detailed description of the setting, participants, and the method of data collection and analysis must be provided. The purpose of such description is to present to the reader a thorough understanding of the total context.

Reducing Limitations

To strengthen and confirm qualitative research findings, researchers often use multiple research techniques, known as triangulation, to study a single phenomenon or program (LeCompte & Preissle, 1993; Merriam, 1988; Patton, 1990; Wolcott, 1992). Triangulation is used to strengthen the internal validity of a study, to enhance the scope and clarity of a study, and to reduce biases that may occur when only one researcher observes a phenomenon (LeCompte & Preissle; Patton). There are four types of triangulation: triangulation of source or data, triangulation of methods, triangulation of investigator, and triangulation of theories (Lincoln & Guba, 1985; Patton, 1990). Each type of triangulation involves the use of multiple methodologies to study a single phenomenon or program (Patton). The most common form of triangulation is the use of multiple methods for collecting data (Merriam). According to Lancy (1993), triangulation often involves collecting both printed materials and other artifacts in combination with observations and interviews to guard against a charge of subjectivity.

Benefits of Qualitative Research

Qualitative research offers researchers several benefits. These benefits include greater interaction with participants, a broader understanding of the phenomenon being studied, a focus on process rather that outcome, research that is expandable and changeable, and emergence of theory from data rather than the testing of theory.

Greater Interaction with Participants

Qualitative research relies heavily on gathering detailed descriptions of situations, events, people, interactions, and behaviors of participants. To gather these detailed descriptions, researchers must have direct contact with and get close to the participants in order to understand the participant's insights and experiences of the phenomenon (Patton, 1990). Gathering detailed information from participants makes it possible for the researcher to describe and understand both the external observable behaviors as well as the internal feelings of the participants (Patton).

Broader Understanding

Qualitative research requires a researcher to observe, experience, and examine everyday tasks of participants (Wolcott, 1992). This gives the researcher a holistic perspective of the entire phenomenon being studied. By gaining a broader understanding of the phenomenon, the researcher can study how the parts of a complex system or setting are use to make up the whole. According to Patton (1990), "the advantages of qualitative portrayals of holistic settings and impacts is that greater attention can be given to nuance, setting, interdependencies, complexities, idiosyncrasies, and context" (p. 51).

Focus on Outcome

Qualitative research is an inductive approach where the researcher attempts to make sense of the situation without imposing preexisting expectations on the phenomenon or setting (Patton, 1990). In qualitative research, the researcher does not usually enter the field to test a theory, hypotheses, or generalization. Instead, the researcher's focus is on the outcomes of the study--what the data reveals about the phenomenon (Peshkin, 1993). According to Peshkin, outcomes may be placed into one of four categories: description, interpretation, verification, and evaluation. Description refers to outcomes that describe processes, relationships, settings and situations, and people. Verification refers to outcomes that verify certain assumptions, theories, or generalizations. Evaluation refers to outcomes that evaluate rate policies, practices, or innovations. Interpretation refers to outcomes that lend a wide range of possibilities including explanation and creation of generalizations; development of new concepts or elaboration of existing concepts; provisions for insights into behavior, knowledge, or problems; understanding of complexity; and development of theory.

Expandable and Changeable

Qualitative studies are constantly subject to change and redirection because of the open-ended nature of qualitative research (LeCompte & Preissle, 1993). Each qualitative study is unique in its setting and change is ever present in a naturally occurring setting. Uniqueness of setting and naturally occurring change make it difficult to predetermine the *exact* methodology that will be used in a study. As a result, this changeable nature of qualitative research requires that the design be developed as part of the total research process rather than determined beforehand (LeCompte & Preissle). By avoiding rigid design restraints, the qualitative researcher is able to adapt inquiry methods to allow for increased understanding (Patton, 1990).

Emergence of Theory

Qualitative research uses an inductive approach that emphasizes the emergence of theory during the data collection and analysis phase of the research. The intent of qualitative research is not to be constrained by a theory (Creswell, 1994). According to Lather (1986), "data must be allowed to generate propositions in a dialectical manner that permits use of *a priori* theoretical frameworks, but which keeps a particular framework from becoming the container into which the data must be poured" (p. 267). This inductive process emphasizes a move from data towards generation or discovery of a theory rather than the testing or verification of a theory (Henwood & Pidgeon, 1993).

Methodology

The term "qualitative" refers to a variety of techniques that may be used for data collection, analysis, and interpretation (Guba & Lincoln, 1994). The following sections provides a brief overview of six qualitative methodologies.

Naturalistic Inquiry

Qualitative research is often referred to as naturalistic inquiry, and the two terms are sometimes used interchangeably (LeCompte & Preissle, 1993; Patton, 1990). The goal of naturalistic inquiry is to understand a naturally occurring situation in the real world. Naturalistic inquiry has two unique and predominant features: limited researcher manipulation of variables of interest, and few constraints on the outcomes of the inquiry (Jacobs, 1985; Patton, 1990). Thus, naturalistic inquiry allows researchers to study and collect data in a setting where behaviors and actions occur naturally (LeCompte & Preissle).

Naturalistic inquiry assumes that there are multiple realities in any situation and to understand these realities the situation must be studied holistically (Lincoln & Guba, 1985; Merriam, 1988). Multiple realities are based on the notion that the world is a function of personal interaction and perception and that to understand these realities the researcher must also understand the context of that situation.

In addition to multiple realities, Lincoln and Guba (1985) feel it is practically impossible to distinguish causes from effects since all entities are in a state of *mutual simultaneous shaping*. Mutual simultaneous shaping states that everything influences everything else. Thus, situations, people, and circumstances affect each other continuously and must be viewed as a whole in the context where they interact. Lincoln and Guba caution that sometimes humans *create* an effect in anticipation of a cause. This situation is referred to as a self-fulfilling prophecy and occurs when a person expects something to happen and therefore causes it to occur.

In addition to concerns of the process, naturalistic inquiry involves ensuring the character and integrity of the researcher since the researcher is the instrument of the research. It is therefore imperative for the researcher to maintain honesty, consistency, and neutrality during the entire inquiry process (Lincoln & Guba, 1985). Without these characteristics, the study, as well as the participants and the outcomes, may suffer.

Case Studies

Merriam (1988) describes case studies as an ideal design for understanding and interpreting problems associated with practice by examining phenomenon associated with a program, an event, a person, a process, an institution, or a group. Case studies operate from a holistic perspective in order to gain an in-depth understanding of the situation for those involved (Merriam, 1988). Case studies focus on process rather than outcomes, context rather than specifics, and discovery rather than confirmation. Researchers may use case studies when seeking detailed information from a single case (Patton, 1990; Stake, 1994).

Case studies have four essential characteristics: particularistic meaning that the case study focuses on a particular situation, program, or phenomenon; descriptive meaning that the end prod-

uct of the case study is thick with description of the phenomenon; heuristic meaning that the case study provides the reader with an understanding of the phenomenon; and inductive meaning that the case study's data is grounded in the context of the phenomenon so as to require inductive reasoning (Merriam, 1988).

Participant and Nonparticipant Observations

Participant observation may be defined as a method of data collection that allows researchers to experience a program or situation from an insider viewpoint while still remaining an observer. Participant observation allows researchers to see behaviors and actions as they occur rather than just relying on accounts from interviews (Merriam, 1988). This method is particularly useful when little is known about a phenomenon, when participants are unable or unwilling to be interviewed, or when human interaction is of interest (Jorgensen, 1989; Merriam). However, it is important to remember that not everything can be observed. Before entering the field, researchers should decide what will be observed. Elements likely to be included in an observation include the setting, participants, activities and interactions, the frequency and duration of particular behaviors or actions, and other less obvious but equally important elements such as unplanned events, symbolic or implied meanings of words common to the situation, or nonverbal communications (Merriam).

According to Merriam (1988), participant observation "is a schizophrenic activity in that one usually participates but not to the extent of becoming totally absorbed in the activity. At the same time one is participating, one is trying to stay sufficiently detached to observe and analyze" (p. 94). Participant observation may be particularly useful when a researcher seeks to obtain a holistic perspective of a situation in context. The amount of researcher involvement may vary from complete participation (i.e., the researcher becomes an active member of the group being studied) to complete observation (i.e., the researcher remains hidden from the group; Jorgensen, 1989; Merriam; Patton, 1990).

Phenomenology

Phenomenology is a reasoned inquiry that seeks to discover the intrinsic nature of a perceived socially constructed reality (Stewart & Mickunas, 1974). Unlike Descartes and his Cartesian dualism which divides reality into two parts, mind and body, phenomenology views mind and body as related and inseparable.

A more recent movement in phenomenology is often referred to as social phenomenology. Social phenomenology reflects an attempt to bridge sociology with a philosophical phenomenology outlined by Husserl (Holstein & Gubrium, 1994). Social phenomenology focuses on ways that individuals construct and experience their world by acknowledging that members of a given culture share meaning and definitions provided by situations they experience. Advocates of social phenomenology acknowledge that an individual experiences the world with a "stock of knowledge composed of commonsense constructs and categories that are social in origin" (p. 263). This stock of knowledge allows members to see familiarities in new or unfamiliar experiences, thereby rendering new experiences recognizable to past ones.

In its broadest sense, phenomenology examines the meaning of ordinary and everyday phenomena or experiences (Barritt, Beekman, Bleeker, & Mulderij, 1985; Patton, 1990). Phenomenology studies how people describe, experience, and interpret their experiences with their senses (Patton). Furthermore, since phenomenological research depends on an interpretation of how participants apply meaning to experiences they encounter in a given situation, researchers should enter the field with an open mind to develop conclusions based on a situation post hoc rather than *a priori* to more completely understand the phenomenon (Holstein & Gubrium, 1994; Lancy, 1993).

Orientational Inquiry

The purpose of orientational or theory-based inquiry is to interpret and find meaning in a given context on the basis of a particular theory (Flinders & Mills, 1993; LeCompte & Preissle, 1993; Patton, 1990; Wolcott, 1992). Theory provides researchers with a guide for connecting what appears to be disconnected and a means for revealing what seems to be concealed (Eisner, 1993). Furthermore, theory can help the researcher maintain focus for the study (Henstrand, 1993; Lincoln & Guba, 1985). In qualitative research, researchers are often overwhelmed by the amount of data available; by maintaining focus, decisions can be made about what information to retain and discard.

Theories are not limited to one area of the qualitative research process. Theories may be used in the descriptive, analytical, and prescriptive process; however, at different times one process or another may take precedence (Mathison, 1993). Still, theory provides the researcher with a guide for completing the research. Furthermore, the theoretical perspective may change at any point during the research process since the research sometimes discovers that the original ideas were too narrow and must broaden the outlook (Thornton, 1993).

Heuristics

Heuristics is a form of phenomenological inquiry that seeks to know the researcher's experience of the phenomenon (Patton, 1990). Heuristic inquiries require the researcher to have a personal experience with and an interest in the phenomenon being studied in order to focus on the intense human experiences occurring in the phenomenon (Langenbach, Vaughn, & Aagaard, 1994; Patton).

Although heuristics is derived from phenomenology, it differs from phenomenology in several ways. Patton (1990) outlines those differences: 1) heuristics seeks to emphasize a connectedness and a relationship while phenomenology encourages more detachment in researching an experience; 2) heuristics attempts

to represent the essential meaning, the intrigue, and the personal significance that influences the search of understanding and knowing while phenomenology emphasizes definitive descriptions of the structures of experience; 3) heuristic reports include a creative synthesis that recounts the researcher's intuition and tacit understandings while phenomenology presents a distillation of the structures of experience; and 4) heuristic inquiry keeps the participants visible in the examination of the data and continues to portray the whole person while phenomenology loses the persons in the process of descriptive analysis.

Conclusion

Qualitative research provides numerous approaches and methods for researchers. Qualitative research, as with quantitative research, has limitations and benefits. It is the decision of the researcher which form of research to use. According to Brown (1989), any research should uphold certain professional standards including a commitment to search for truth, a contribution in some significant way to knowledge, adequate and coherent arguments supporting the conclusions drawn from the research, and observation of ethical norms in the conduct and presentation of the research. The primary question any researcher must ask in order to determine which methodology (i.e., qualitative or quantitative) is most appropriate is "What questions do I want answered?"

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Qualitative Research: The Interview

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Abstract

Qualitative research gives researchers and readers the opportunity to experience life from another's perspective. From the early anthropological studies of tribes to studies of teachers and schools today, qualitative research has played an important part in learning about other cultures. But to make these studies important and credible, qualitative researchers must follow a process as demanding as quantitative researchers. Qualitative researchers must be concerned with theoretical frameworks, accurate research questions, proper samples, reliability and validity of data, and a correct research method as well as solid data analysis. If any of these steps are compromised during the process, so are the data collected.

Origins

People who participate in qualitative research consider understanding "why" people believe or act as they do as important as understanding "what" people believe or "how" people act. They are interested in and focus on a study's depth. In addition, qualitative researchers want to recreate those shared beliefs, practices, and behaviors of the people studied so the reader will understand also (Goetz & LeCompte, 1984, p. 2).

One common model of qualitative research, ethnography, has its origins in anthropology. Social scientists wanted to discover what the non-Western European world was like. Those early researchers immersed themselves in the culture of African or South American tribes to understand life as the tribes knew it. Today, researchers apply ethnographic methods to the study of contemporary society and social problems (Patton, 1990, p. 68).

One setting that has been and still is a rich area for ethnographic studies is education. Some prominent examples include Wolcott's study of principals (1973), Rogers's study of desegregation in the New York City schools (1968), and Metz's study of power in desegregating schools (1976). All of these researchers and others have tried to give the reader a true sense of what lies beyond the walls of a school.

Theoretical Framework

No research should ever start in a void including qualitative research. To begin a qualitative study, researchers should specify the theoretical frameworks that support and guide their studies. Some different frameworks include grand theory, formal and middle-range theories, and substantive theory. For ethnographic researchers, Goetz and LeCompte (1984) found that theoretical models are the most commonly used frameworks.

Theoretical models or perspectives are loosely interrelated sets of assumptions, concepts, and propositions that comprise a view of the world (p. 37). For example, a study by a psychologist might be guided by behaviorism or cognitive structurism depending on which theoretical model he or she supports. One can find in almost every discipline a supportive theoretical model. In education, according to Gage (1972), there are three broad categories of learning theories: conditioning theories, imitation theories, and cognitive theories (p. 43).

Research Questions

In qualitative studies, many ideas for a research study originate from observations, problems, and questions. They are not stated as if-then hypotheses but are more in the form of wide-ranging inquiries (Marshall & Rossman, 1989, p. 28). In education, a question such as "How does a teenager who was skipped (or held back) a grade perceive school?" would be an appropriate research question for an ethnographic inquiry.

Sampling

Because qualitative inquiry focuses on depth instead of breadth and avoids generalizations, sample size is more flexible than in quantitative research. The sample size for qualitative research depends on "what you want to know, the purpose of the inquiry, what's at stake, what will be useful, what will have credibility, and what can be done with available time and resources" (Patton, 1990, p. 184). The researcher selects his or her subjects on the basis of who can provide the most information about issues that are of central importance to the purpose of the research. Selecting these information-rich sources is the logic and power behind purposeful sampling (Patton, 1990, p. 169). The purposeful sample size should be terminated when no new information is forthcoming to the point of redundancy (Lincoln and Guba, 1985, p. 202).

Purposeful sampling, however, is not convenience sampling. Purposeful sampling is strategic because subjects are selected on the basis of getting the most crucial information from a limited number of cases. Convenience sampling is the process of selecting subjects who are easy to access and inexpensive to study and is neither strategic nor purposeful. While convenience and cost are real concerns to the researcher, they should be the last

factors to be considered in sampling decisions (Patton, 1990, p. 181).

Reliability and Validity

Along with the issue of sampling, the question of reliability and validity in qualitative research concerns many researchers. Traditionally, reliability refers to the extent to which a researcher using the same methods can obtain the same results as those of a prior study. Validity refers to the extent to which constructs tested are applicable across groups, and the question of whether researchers are actually measuring what they think they are measuring.

Given the nature of the naturalistic inquiry, can other researchers really replicate a study? Most qualitative researchers strive to present their methods so clearly that other researchers can use the original report as a guide to replicate the study (Goetz and LeCompte, 1984, p. 216). However, qualitative researchers are generally more concerned with the accuracy and comprehensiveness of their data rather than the literal consistency across different observations (Bogdan and Biklen, 1982, p. 44).

Generalizability across groups is not a dominant goal of qualitative research. Information from subjects is considered valid even though it only represents a particular point of view in a specific context (Goetz and LeCompte, 1984, p. 223). If the researcher has the ability to capture the subject's view of the world and accurately portray it to the reader, the information is valid (Wolcott, 1990, p. 130). Maxwell (1992) calls this attempt at accurate portrayal "interpretive validity." The researcher's goal is not only to describe events, objects, behaviors, and settings but to comprehend and depict what these phenomena mean to the subject.

Method: The Interview

Research methods are plentiful in qualitative research including participant observation, nonparticipant observation, and review of artifacts. A popular method in many ethnographic studies is the in-depth interview. A qualitative in-depth interview is not an attitude survey or opinion poll but is "face-to-face encounters between the researcher and informants directed toward understanding informants' perspectives on their lives, experiences, or situations as expressed in their own words" (Taylor and Bogdan, 1984, p. 77). Though they all have the same purpose, Patton (1990) found that qualitative interviews could be divided into three categories: the informal conversational interview, the general interview guide approach, and the standardized open-ended interview. Each format has its own strengths and weaknesses, and the researcher must decide which one will work best in his or her own situation.

The most flexible approach to interviewing is the informal conversational interview (p. 281). This strategy is usually combined with participant observation, and the questions are not predetermined. The interviewer wants the subject's reactions to whatever situation is happening at that time. This method works particularly well when the interviewer can spend a duration of time with the subjects and have repeated interviews with them. Each informal interview builds upon the last one.

A strength of this approach is that is allows the interviewer to individualize the questions depending on the situational changes. However, this type of interview requires a great amount of time to collect the date, and the data is often difficult to analyze. In addition, the interviewer must be able to interact easily with the subjects and formulate questions quickly and smoothly (p. 282).

With the interview guide approach, a list of issues are developed before the interview. This approach makes the interview systematic and comprehensive. In addition, using an interview guide helps the researcher make the best use of limited time and is effective in conducting group interviews because it keeps the interactions focused on the issues (p. 283).

However, the researcher still remains flexible and open to emerging topics like the informal conversational interview. The researcher can still establish a conversational style and word questions spontaneously letting individual perspectives and experiences emerge. Data analysis is still somewhat difficult although easier to analyze than the informal conversational style data.

In a standardized open-ended interview format, questions are written out in advance exactly the way they are asked during the interview. Patton (1990) found three main reasons for choosing this interview format over the others: (1) the exact instrument is available for inspection, (2) variation among interviewers can be minimized where a number of different interviewers must be used; and (3) the interview is highly focused so that the subject's time is carefully used (p. 285).

This approach is very systematic and data analysis is easier in this approach than the others because each subject's answers can be located and organized quickly. However, a weakness of this technique is that it does not permit the interviewer to pursue topics or issues that were not anticipated when the interview was written. Also, this approach reduces the extent to which individual differences and circumstances can be taken into account (p. 287).

The Interview Process

Before the Interview

If they can fit you into their schedules, many people are flattered at the prospect of being interviewed for a research project. However, Taylor and Bogdan (1984) found that there are certain issues that should be raised before the interview begins including motivation and intentions, anonymity, final say, and logistics. In regard to the issue of motivation and intentions, the researcher should be clear on whether he or she hopes to publish the results of the study and if the subject has a problem with that publica-

tion (p. 87). If the subject does have major concerns, the researcher should seriously reconsider interviewing that subject. If the results cannot be published, the researcher must decided if the energy and time spent collecting and analyzing data is still worth the effort.

The researcher would also be wise to use pseudonyms for people and places to guarantee anonymity. Very little would be gained from using real names and much could be lost. The risks of using real names could range from embarrassment of the subject or others mentioned to serious legal problems (p. 87).

Telling the subjects they will have the opportunity to read and comment on drafts of any articles prior to publication is a very good way to gain their trust before the actual interview (p. 87). This opportunity usually strengthens the relationship between the subjects and the researcher. This final say could also strengthen the quality of the study by ensuring that what is written is truly the subjects' perspective of the world.

Logistics also need to be considered before the first interview. Both the researcher and subject need to have a quiet place to relax and talk without interruption (p. 88). The frequency and length of the interview(s) depend on each person's schedule. The researcher should be careful not to go so long that the subject becomes tired and irritable.

Practicing before the actual interviews take place is a good idea for all but the most experienced interviewers. Asking relevant and thought-provoking questions may not be as easy as it seems. The researcher should tape record a practice interview and listen for mistakes such as asking dichotomous questions instead of open-ended ones, asking two questions in one, asking leading questions, and talking more than the subject. All of these mistakes can cause the interview to turn out poorly. The data gotten could be relatively worthless to the research.

During the Interview

There are two items that must not be overlooked in the interview process or the quality of the data could be suspect. One issue is ensuring that the atmosphere is comfortable enough so that the subjects talk freely about themselves and the issues. The researcher does not want the subjects to hold anything back. Another issue is capturing the actual words of the person being interviewed. Without having the exact quotes of the subject, no data analysis can take place (Patton, 1990, p. 347).

To create a relaxed atmosphere for the subject, Taylor and Bogdan (1984) found that the researcher should always strive to be nonjudgmental, patient, sensitive, and interested (p. 94). People may reveal embarrassing information, say something inane, or totally leave the issues that are being researched. However, the researcher must not make the subject uncomfortable in any of these situations. The subject might pick up on adverse reactions and then try to say things he or she thinks the researcher wants to hear. The data is now compromised.

Using a tape recorder during the interview is essential for capturing the subject's exact words. Tape recorders do not "drift away during conversations, change what was said because of interpretation, or record words more slowly than they are spoken" (Patton, 1990, p. 348). However, tape recorders can malfunction so major points made by the subject should be jotted down. Additionally, the researcher should carry extra batteries and extra tapes to each interview. The tape should be reviewed periodically during the interview so that the sound quality can be checked.

Many tape recorders are small but can pick up voices quite well. If the sight of the tape recorder makes the subject nervous, it can be hidden behind various objects and soon the presence of it is usually forgotten. The researcher needs to explain to the subject the importance of the tape recordings to the data collection but if the subject is adamantly opposed to being recorded, the researcher must rely on his or her note-taking ability as well as recall ability.

After the Interview

The period after the interview is a time for guaranteeing the quality of the data (Patton, 1990, p. 352). The researcher should review the tape in its entirety and listen for areas that are vague or need further clarification. These areas should be discussed with the subject as soon as possible. Accurate portrayal of the subject's world is the goal. Guessing the meaning of the response is unacceptable in qualitative research (p. 353). Also, reflections and observations about the interview need to be written down right after the interview. The data analysis should begin when the data is fresh, and insights could occur that might be lost if too much time passed before these reflections occurred.

Summary

Qualitative research provides rich results and new insights into many areas of study including business and vocational education. It is a rigorous but satisfying way of conducting research. Those who are interested more in "why" or "why not" instead of "how many" should consider attempting a qualitative research project in their area of interest.

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Quantitative Data Deficiencies and Qualitative Research

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Abstract

Recent research has sought to caution analysts as to deficiencies commonly found in data produced by governmental agencies in developing countries. At least tacitly, this research has entailed the use of ethnographic methods to evaluate the production and analysis of quantitative data. As such, it can reasonably be construed as a useful application of triangulation: Use of multiple research methods, both quantitative and qualitative, to address issues of importance. We have sought to more explicitly and systematically use the same procedure -- triangulation -- in evaluating and improving survey research undertaken jointly by Marshall University and East China Normal University. The outcome of this exercise in selfconscious triangulation is a catalog of threats to quantitative data quality likely to be encountered when Western researchers use survey techniques in China. We conclude that such survey research should include an ethnographic complement to enhance the value of quantitive data.

Recent work in applied research and program evaluation in academic, vocational, and technical education in Third World settings has focused on threats to data quality (see especially Chapman and Boothroyd, 1988). Recently reported threats have included (1) simple errors in reporting, (2) errors in transferring and summarizing data, (3) errors due to the uncertain and inconsistent treatment of missing data, (4) lack of consensus about data definitions, (5) inability to merge complementary data sets across time and across the boundaries of governmental agencies, (6) poorly designed or topically unsuitable data collection instruments, (7) software and programming limitations, especially over-reliance on cumbersome machine language, (8) employing developed world assumptions and concepts in developing country settings, (9) employing urban assumptions and concepts in rural settings, and (10) inviting "yea-saying" from ill-informed respondents.

There is an interesting irony in most discussions of these kinds of data problems. Specifically, the observations are made and reported by academic and agency quantitative researchers and evaluators. However, the data collection procedures used in preparing these reports might best be described as informally qualitative.

Informal Triangulation

For the most part, the information is a product of direct day-to-day experience, either as employee or consultant, in developing country agencies. The information is intrinsically qualitative, and its use in evaluating quantitative research and evaluation reports is an interesting exercise in triangulation -- using complementary methods in pure and applied research processes.

Unselfconscious Ethnography: An Example

So far, however, the qualitative aspect of this endeavor has remained tacit and unselfconscious. A researcher, for example, does preliminary regression analysis as part of an evaluation of a rural elementary education program. Remarkably, he notes that the School Climate measure which he is using as one of his independent variables correlates negatively with all of his ten outcome measures. At a loss, he examines the Social Climate interview schedule and tentatively infers that the items might very well invite "yea-saying" from parent respondents who are among the least involved and least informed. This is a non-hypothetical example of a quantitative researcher informally using qualitative research methods to interpret and understand limitations of his work.

A Case Study In Triangulation

In a more systematic and self conscious fashion, we are applying ethnographic techniques to the analysis of a joint survey research and evaluation venture involving Marshall University and East China Normal University. We are focusing on data collection instruments and procedures and the relationships among the data collection and data analysis endeavors. This is part of an effort to more systematically catalogue threats to data

quality in developing country settings. The catalogue is based on qualitative research. This is a case study in triangulation, in that multiple methods, both qualitative and quantitative, are being used to address the same issues.

Organizational and Institutional Differences Between China and the U.S. Are Poorly Understood by Both U.S. Researchers and Chinese Respondents

Unacknowledged organizational differences lead to poorly worded questions and inappropriate sets of response categories. These, in turn, yield misleading data. As a simple example, U.S. researchers typically underestimate the size of public sector firms in China. This stems in part from failure to appreciate practical consequences of full employment policies, integral to China's economy, but foreign to U.S. practices. Therefore, preliminary questionnaire items concerning mundane but essential matters such as number of employees, or number of employees filling a particular occupational role, sometimes force Chinese respondents to add additional categories to fixed response sets so that the size of their firm can be accurately recorded.

This unanticipated effort by respondents to compensate for deficiencies in design of data collection instruments also raises the possibility that some respondents are unwilling to tamper with the questionnaires, and therefore provide erroneous information. Further, missing data regarding such simple but important items may be due to Chinese respondents' understandable reluctance to either add items or to use unsuitable items already included in the questionnaire.

It is a simple matter to detect Chinese respondents' addition of a category or value to a fixed response set. However, erroneous use of existing categories, or simple failure to respond because of an inadequate set of response categories, remains, in the first instance, undetected, and, in the second instance, unexplained.

"Organizational Homonyms"

In the same vein, it is also important to recognize that structural differences between U.S. and Chinese organizations may be unwittingly masked by similar sounding names. Perhaps we might term this the phenomenon of organizational homonyms — entities which sound the same but have very different meanings. This may lead to questionnaires and interview schedules being distributed or administered to the wrong set of respondents, those who lack the information needed by survey researchers.

For example, the term "workers' union," in China, refers to a department or section in an industrial or business enterprise or other academic or governmental agency which provides opportunities for planned and "worthy" use of leisure time, family counseling, family planning, and other activities which a researcher proceeding from Western assumptions and preconceptions would not anticipate. A Western researcher interested in labor militancy who focused data collection efforts on a worker's union in a Chinese firm would be wide of the mark, indeed.

Coarse-Grained English

In some instances, moreover, the translation/interpretation process is impeded by the comparatively coarse-grained nature of English when faced with the task of designating Chinese organizational and occupational categories and positions. In spite of the less-developed nature of the Chinese economy, Chinese industrial, business, and academic organizations use a more varied set of titles. This may result in confusion concerning the identity of appropriate respondents, and questionnaires may be distributed or interview schedules administered to the "wrong" respondents — those ill-suited to answer the questions being posed.

One reason for this is that Chinese organizations of all kinds tend to be hierarchically more complex or differentiated than organizations in the U.S. or elsewhere in the West. In effect, in the Chinese setting, bureau is stacked on top of bureau, and office on top of office, with each bureaucratic entity handling an essential but highly specialized aspect of any task.

Occidental Arrogance

Again, mistakes resulting from failure to anticipate this sort of structural departure from Western norms would result in misinformation or simply missing information. Further, they also leave Chinese respondents and officials with the distinct, too often correct, assessment that U.S. and other Western researchers do not understand enough about China to do creditable research. This is another manifestation of occidental arrogance, perhaps, and certainly a basis for poor-quality survey research.

Open-Ended Questions and Ethnographic Insights

Perhaps one useful admonition which follows from this set of related observations goes as follows: "When in doubt, use open-ended questions." Certainly, this practice will slow down and complicate the process of data entry and analysis, but this seems far preferable to the ritualistic analysis of bad data.

Moreover, unfortunately, another difficulty with this "when-in-doubt" admonition is that intelligent, informed doubting, if it is not to become incapacitating, requires more contextual knowledge than survey researchers sometimes have at their disposal. But that, of course, is one compelling reason for systematically applying ethnographic techniques and concrete ethnographic insights in the design and practice of quantitative survey research.

Incompatibility of Chinese Culture with the Obtrusiveness of Western-Style Research

It is commonplace for American researchers to warn against the dangers of reactivity. Questions concerning sensitive topics such as sexual behavior, religious beliefs, and political views may elicit responses which are misleading or simply wrong. They may also discourage respondents from further participation in

the research. The caution and wisdom needed to avoid alienation of respondents and collection of bad data — or no data — is, at least in the abstract, universally acknowledged. This applies to domestic research just as strongly as to cross-cultural survey work.

Sensitive Topics

In the case of cross-cultural research, however, social, cultural, and political ignorance may easily make avoidance of problems posed by reactivity much more difficult to avoid in concrete instances. As a result, survey researchers may very well, and quite unwittingly, collect quantitative data which more accurately reflects their contaminating presence and the lack of sensitivity embedded in their data collection instruments, than the topics they actually wish to address. Reactivity in survey research done by U.S. or other Western investigators in China can take many forms.

As noted above, respondents may simply refuse to address items pertaining to sensitive topics, and, if issues raised are so sensitive as to be palpably threatening, respondents may refuse to participate at all. This raises obvious concerns with regard to missing data and sample representativeness, as well as to generation of contempt for obviously ill-informed Western researchers.

As an obvious example, Chinese respondents are typically reluctant to respond in forthcoming fashion if required to identify themselves, or to provide information which they suspect might make them identifiable. This is manifest in near-total unwillingness to make unfavorable judgments about managers, supervisors, patterns of work organization, or local-level political leaders when responding to items on questionnaires or interview schedules.

Significantly, however, respondents are quite willing to render harsh evaluations of consumer goods which they purchase in the open market. This latter result stands in sharp contrast to their reluctance to make similarly critical evaluations of products produced by enterprises which employ them.

In a sense, this last finding suggests that some respondent reluctance in China is similar to what one might find in the U.S. American workers, for example, are notoriously eager to malign "the system." On the other hand, however, they are equally unwilling to say anything which might jeopardize their employment or position. This suggests, that Chinese and U.S. respondents' experience with the state are similarly non-threatening. For both sets of respondents, fear of economic sanctions is a local-level concern.

Social Importance of Occupational Position

This difficulty is exaggerated with Chinese respondents, however, because, as explained in Item 10 below, Chinese respondents' assessment of their social and cultural place is so completely defined by their occupational position and their relationships with co-workers. Responses which might jeopardize Chinese respondents' good standing on the job and in the workplace are potentially disastrous threats to their self-esteem, to their assessments of how others perceive them, and to their sense of social place.

Therefore, even with a full-employment policy in place, indicators of occupational status and its diminution can play a conspicuous role in altering responses to survey items. For this reason and others, why should Chinese respondents not judge it simply naive and reckless to accept assurances that the information they provide and the judgments they render will be kept confidential?

Delegation of Authority and Confidentiality

This set of issues can be especially troublesome when data collection is not actually executed on-site by the researchers themselves. After all, if researchers are doing neither face-to-face interviews nor group administration of questionnaires, who is left with the responsibility of distributing and collecting the data collection instruments? This activity is delegated to other members of the respondents' enterprise, typically those in charge.

The opportunity to screen completed instruments for malcontents, even when instruments do not request names, seems obvious enough. The danger that rumors of respondents' dissatisfaction with their workplace consociates will undermine good social relations is a needless risk for which nothing is offered in exchange.

Chinese Society Is Not Nearly so Rigidly and Conveniently Engineered as Many Western Researchers Assume

The prevailing assumption among some U.S. survey researchers is that Chinese society is so tightly organized and subject to such heavy-handed political control that probability samples are easy to design and high return rates are virtually assured. Given the political will, the assumption is that sample design and return-rate problems can easily be minimized. The obvious strategy for the survey researcher, then is to ingratiate him/herself with high-ranking officials and their assistants.

In truth, however, respondents' decisions as whether or not to comply with researchers' requests are local-level and even individual matters, and probability sampling and reasonable return rates are difficult to accomplish. This is not unlike the situation in the U.S.

To make matters worse, however, because of the dearth of telephones in China, telephonic follow-up would be impossible as a means of attempting to compensate for these difficulties, unless the research were limited to businesses.

Representativeness: An Unattainable Ideal

Further, the geographical scope and ethnic and linguistic diversity of China itself make representativeness in sampling a perhaps unattainable ideal. Western researchers are accustomed to responding to the undeniable diversity of societies such as the U.S. by over-sampling identifiable subgroups, or simply increasing sample size so that sufficiently large numbers of subgroup members are included as a straightforward by-product of the random process of sampling.

Diversity and Rurality

In a country as large, diverse, and forbiddingly rural as China, however, such taken-for-granted strategies quickly turn into logistical nightmares. The very concept "rural" takes on a very different meaning, with consequences for survey research which cannot be readily anticipated by Western researchers. Even in Appalachian West Virginia, a state which ranks next-to-last in percapita income, and which, according to the U.S. Census Bureau, is 64 percent rural, more than 95 percent of homes have telephones. Even peculiar local areas which are difficult to reach by automobile are readily accessible telephonically and by two-day mail service. The development of an affordable satellite dish, moreover, assures that the culturally homogenizing effect of television will transmit the rudiments of a common popular culture throughout West Virginia and the rest of the nation.

For much the same reasons, the dispersion of West Virginian's among hundreds of small towns, villages, and so-called hollows, while undeniably troublesome for survey researchers, does not pose insurmountable problems. After all, this is one of the reasons for development of random digit dialing as a widely used survey research technique in the U.S. since the early 1970's.

The vast expanse, genuinely isolated nature of ruralness in China, and the absence of otherwise taken-for-granted means of electronic communication, however, pose survey research problems of an entirely different magnitude. In addition to simple geographical problems of timely accessibility, long-term isolation produces a much higher level of localistic cultural and social diversity than one might find anywhere in the West. Paradoxically, perhaps, it seems much more plausible to argue that there is a typically American type of person, than that there is a typically Chinese type. In the latter instance, the forces for diversity are simply too numerous and too strong. In a society such as China, the notion of a representative sample may be chimerical, indeed. The implications for design and interpretation in survey research are both numerous and obvious.

One point which should be emphasized, however, is that the same data collection instrument may not be suitable for all groups of respondents. Diversity, in effect, may force us to address the same issues in different areas in different ways.

Inviting "Yea-Saying" Due to Poorly Worded Items and Poorly Conceived Instruments

"Yea-saying" is a traditional concern of survey researchers. However, this ubiquitous source of misinformation is especially troublesome for surveys conducted by U.S. and other Western researchers in China for a variety of reasons specific to that vast and diverse nation.

For example, in the course of conducting the research we are now presenting, we were asked to review and evaluate survey research done by colleagues interested in technology transfer. From our review, it seemed clear that Chinese training personnel who had been asked to respond to a set of questionnaire items concerning technology transfer and the technology needs of their enterprises responded positively to items which, in our view, were uninterpretable, or with regard to which respondents were likely to have little or no information.

Ambiguously Worded Items

The specific sources of difficulty in these instances were ambiguously worded items, which would have been impossible to interpret with certainty even in the absence of linguistic differences. Further, questionnaires administered to the wrong set of respondents yield predictably misleading results. In China, as elsewhere, training officers, typically have little or no first-hand knowledge of the nature of technology transfer and its determinants. These Chinese respondents, nevertheless, instead of ignoring items for which they lacked information or understanding, tended to respond in the affirmative.

"Yea-Saying" as a Culturally Specific Phenomenon

"Yea-saying", as noted above, is a well-known concern among survey researchers throughout the world. But this particular, culturally specific source has not been reported in usual methodological texts or research reports known to us.

"Yea-saying" may sometimes be nothing more than a simple manifestation of guessing. More specifically, it may be an effort to avoid an inadvertent insult in the face of uncertainty. It may also betoken a felt need to be a team player, rather than a socially isolated would-be policymaker. But whatever its specific provenance, the pattern of responses to uninterpretable items and to items for which respondents have too little information is certain to be misleading.

One especially interesting aspect of this discussion of misleading information due to "yea-saying" is that it does not stem from failure to understand and explicitly acknowledge social and cultural differences when designing surveys or collecting and interpreting data. Instead, we see that designs and practices which are inherently poor may lead to culturally specific distortions. Poorly designed instruments may yield different outcomes from place to place.

Failure To Appreciate Culturally Specific Aversion to "Nay-Saying"

Continuing with the theme established in the immediately preceding item, Chinese respondents, given a range of choices, will err in the positive direction rather than make what may seem to be insensitively harsh judgments about other institutions and persons. This is especially likely to hold if the institutions and persons are local, experienced by the respondent in a first-hand or face-to-face manner, rather than remotely over-arching facets of a faceless "system."

"Yea-Saying" and the Social World of Work

Negativity and sensitivity to one's workplace consociates seem simply incompatible. In China, where the workplace encompasses so many facets of people's lives, facets that Westerners might construe to be unquestionably private, social sensitivity and good social relations take on special importance.

"Yea-Saying" in the Absence of Information

Further, once again, in the absence of information needed for an informed response, respondents are more likely to give positive responses than to simply skip over the item. As a specific example, it is extremely unlikely that a training officer would acknowledge that his enterprise, or that business in general, has "little or no ability" to "use technology developed in academic institutions." Respondents may be especially averse to this sort of "little or no ability" response category when questionnaires are being administered by researchers from a society which, ostensibly, is technologically superior, and which, at least until recently, was regarded as an international enemy.

However, in the absence of these admittedly speculative, quasi-political considerations, "little or no ability" seems a startling admission, inviting judgments of ineptitude. If business and academia were obviously only loosely-coupled, and if training officer respondents felt no occupational obligation to pursue technology transfer as a matter of day-to-day policy, a differently worded response category — say, "Academic institutions show little or no ability to produce useful technology." — might have yielded very different results from respondents in business or industry.

To use such insights such as these, however, those who design and employ quantitative data collection instruments must first possess them. In the absence of information which enables survey researchers to appreciate the real world complexity of the Chinese context, however, the coarse-grained crudeness described in much of the above seems virtually guaranteed.

Failure To Appreciate Differences Between Chinese and American Information Systems Technology

Tacitly held assumptions as to social indicators and organizational information which is routinely available may suffuse the design of data collection instruments. If, for example, instruments are premised on the unspoken assumption that automated record-keeping systems covering the entire history of an enterprise are routinely available, questions on the instruments may require information which respondents do not have, cannot get, or can get only with great difficulty working with a manual system.

The manual system, moreover, may be maintained only erratically, may have substantial gaps, and may not include variables of importance. Again, this may give rise to distorted response patterns which, while avoiding missing data problems, yield more misinformation than information.

U.S. and other Western researchers too often are imbued with the assumption that since the Chinese economy is growing rapidly and developing in what appears to be a pragmatically technocratic and, in many ways, thoroughly western fashion, computers will be commonplace in academia, business, and industry. This, however, is not the case. The pace of technology transfer has simply not been fast enough to support this sort of assumption.

Still, anyone who has done research in American schools, the U.S. court system, and a broad range of other institutions in the West should not be unduly surprised by this. In elementary and secondary schools, permanent record cards are notoriously poor sources of information for research, evaluation, or even routine monitoring. Urban court records are sometimes reminiscent of late-nineteenth century organizational bookkeeping schemes, and their continued maintenance is a tribute ritual, myth, and ceremony. And this occurs where computers are in abundance and sophisticated software is available to nearly everyone.

Similarly primitive arrangements in Chinese organizations of all kinds should come as no surprise. That they often do redounds to the ethnocentric discredit of Western survey researchers.

In the Process of Translating from One Language to Another, the Distinction Between Information and Opinion May Be Obscured or Distorted

Items meant to solicit informational responses may be interpreted to tap respondents' opinions. Items meant to elicit opinions or informed judgments may be interpreted as requests for concrete information.

Further, respondents who lack the information to respond to what is fairly clearly a request for concrete data, may tacitly rephrase the item as an opinion item, again inviting distorted response patterns. These difficulties may be especially troublesome when items are inherently ambiguous, meaning that problems of interpretation are not due to linguistic or cultural differences, but inhere in questions which are ambiguously worded by any standard.

Analysts May "Over-Interpret" Aggregate Response Patterns Based on Unsubstantiated Preconceptions as to Similarities and Differences Between the Nature and Organization of the Chinese Society and the U.S. Society

Too often, in a blind search for interpretable results, researchers engage in what might best be termed "data dredging" of survey results. In the absence of a data collection instrument which was designed with detailed knowledge of Chinese social, economic, and political organization, researchers are faced with the daunting task of making some sense — any sense — out of survey results. Consequently, especially when those interpreting the results are as ill-informed regarding the Chinese context as those who designed the survey instruments, American or other Western pre-conceptions may be imposed on Chinese response patterns.

Analysts' "Need" and for Significant Findings

Further, inconsequential differences among identifiably distinct sets of respondents may be interpreted as representing substantively important statistical associations. For example, in the recent report on training and technology transfer cited above, statistically non-significant differences among Chinese academicians, business leaders, and training personnel were judged to indicate that the business leaders were obsessively concerned with foreign competition for markets for Chinese products, while the academicians focused just as narrowly and intensely on enhanced productivity, with the training personnel somewhere in between. In each instance, however, the differences among the three groups were statistically non-significant, and a more defensible interpretation would hold that there were no differences among the three sets of respondents.

In this instance, it appears that the researcher assigned the role of interpreting the data was trying his/her best to find something of interest to report using a data set wherein respondents, whatever the reason, seemed remarkably alike. Perhaps the analyst proceeded from tacitly held assumptions, engendered by a lifetime in the U.S., about the differences which he/she purported to find among Chinese respondents.

Over-Interpretation and Researchers' Ignorance

To make matters worse, if the respondents surmise that the researcher who designed the questionnaire does not understand Chinese society, and this ignorance is reflected in the instrument, their understandable skepticism about the value of the research may lead to distorted response patterns. In instances such as this, data dredging may be contaminated not only by the analysts' (and perhaps the respondents') ignorance, but by the respondents' contempt, as well.

The Convergence Hypothesis Revisited

A more general issue might be phrased as follows: Do Western researchers understand the factors which make for differences in knowledge and outlook among Chinese respondents, or are they merely imposing tacitly held Western assumptions on data collection efforts in China? Could it be that too many researchers are unwitting victims of a grossly over-simplified version of the so-called convergence hypothesis: As societies develop, they necessarily give priority to technocratic concerns and meritocratic modes of social organization. Therefore, people, from society to society, become more and more alike.

This variant of modernity theory no longer enjoys the unchallenged social scientific credibility that it once did, but it still seems to suffuse the common sense assumptions of researchers and the rest of us. This may lead to failure to identify the social, cultural, and other differences which make for diversity and private explanations in one society, but not in another.

Failure to Appreciate Chinese Respondents' Heightened Sensitivity to the Need to Provide Socially Acceptable Responses

This may be construed to be a variation on the proclivity for "yea-saying" and aversion to "nay-saying," as discussed above. However, it is analytically distinct from these phenomena, and sufficiently important to merit discussion as a separate item. The conspicuous importance of the world of work and one's occupational and organizational role provide an important reason for this.

Occupation and the Social Self

Designers of questionnaires may not be sensitive to the fact that, in China, one's occupational status plays an over-riding role in determining nearly every aspect of one's social standing. Further, if respondents are asked survey questions either while on the job, or merely about their job, they will give responses which they think will be pleasing to their superiors and to others whose judgments they value.

As a result, survey techniques may be ill-suited to gathering information about job interest, occupational mobility, and satisfaction with working conditions. Even questions concerning use of leisure time may give rise to distorted response patterns since respondents may feel obliged to claim that they use their leisure in ways that will improve their occupational performance or otherwise demonstrate their commitment to doing good work in their present position.

Not infrequently, respondents may be sensitive even to the judgments of the researchers who will interpret the aggregated data,

of which their responses will be a part. Since occupational position is of such diffuse importance, anticipation of judgments on the part of almost anyone may give rise to what are commonly termed socially acceptable responses.

The Social Self and the Naive Researcher

Further, given the opportunity in the form of a naive researcher, Chinese respondents may exaggerate the nature of their jobs and the actual importance of their occupational roles and positions. In a sense, responding to questions concerning occupation is comparable to painting a social self-portrait. This invites both the respondent and unspecified others to reflect on his or her socially determined merit.

It is important to recognize that this sensitivity is not due only to an exaggerated social psychological need to maintain and enhance one's self-esteem. Instead, it also reflects very real, material concerns: Chinese respondents recognize that their society, much like all others, is only very imperfectly meritocratic. As a result, they will be reluctant to say anything which a superior might take as evidence of dissatisfaction or a disposition toward criticism of the enterprise, or of the superior him/herself.

Respondent Collaboration

One way in which Chinese respondents may seek to protect themselves from retribution is to collaborate: everyone gives the same responses to all items. As in the U.S., moreover, assurances that data collection instruments are designed so as to guarantee anonymity may be met with a good deal of skepticism. As already noted, to do otherwise may understandably seem reckless rather than laudably forthcoming.

The Meaning of Taken-For-Granted Concepts, Which Are Used in Both China and the U.S., May Be Substantially Different From One Society to Another

In the U.S., for better or worse, the words "computer" and "literacy" have become inextricably coupled. Basic skills are no longer reading, writing, and arithmetic, but reading, writing, arithmetic, and computers. This faddish development seems to have gone unquestioned in the U.S., and Western researchers too often proceed from the assumption that in any modern or modernizing society, the same must be true.

In China, however, this is not the case. Though China is developing rapidly and aggressively, the meaning of "literacy" is still the traditional one, and computers are still relatively rare. Therefore, a respondent who encounters a question concerning "Basic Literacy Training" and finds that it pertains to "Reading Skill," "Math Skill," and "Computer Skill" may be confused by the joining of these three areas. The first two clearly belong, but the third, in the Chinese context, does not.

In short, not all processes of industrialization, modernization, and development proceed according to common sense preconceptions of U.S. researchers. Failure to acknowledge this may produce misleading information, and again suggest to Chinese respondents that the U.S. researchers do not understand Chinese circumstances. So why should the Chinese respond? And why should they respond with attention to accuracy and detail?

Failure To Acknowledge That Present, Past, and Future Tense Must Be Specified Differently in Chinese Than in English

James Joyce's hopelessly opaque novel "Finnegan's Wake" has been translated into Russian. Mao Ze Dung's densely obscure essay "On Contradiction" has been translated into English. In the twentieth century, survey research difficulties due to subtle linguistic differences might seem easy to overcome, indeed.

To counter this sometimes misleading assumption, however, we offer the following example. If a questionnaire item asks academic officials "Is your institution actively seeking the development of training partnerships with business and industry?", translation/interpretation is not straightforward. Care must be taken that the item, when translated into Chinese, explicitly states whether the question pertains to the past, present, future, or some combination of these temporal locations. Unless Chinese words or phrases which clearly indicate past, present, or future are included, the tense will be ambiguous, inviting guessing.

In view of what we have already discussed concerning the proclivity of Chinese respondents to resort to "yea-saying," especially when faced with ambiguous items, it seems likely that failure to adequately specify tense will be yet another source of this same distortion.

The Problematic Role of the Interpreter

Further, in instances when interview schedules, rather than questionnaires, are being interpreted on the spot, so to speak, the kind of ambiguity just referred to may pose problems for interpreters. This ambiguity will not only force the interpreter to guess, but his/her uncertainty may be sensed by the respondent, further undermining the credibility of the of the entire data collection enterprise, and, predictably, yielding poor-quality data.

One way to remedy this latter difficulty is to have researchers who participated in designing the interview schedule also on the spot. The interpreter may then consult with the researcher to clarify ambiguities.

In large-scale surveys, of course, the presence of researchers at all data collection sites may be simply impossible. This places a premium on well-trained interpreters who are thoroughly acquainted with the data collection instruments and their purpose in the overall research project.

Using Interpreters May Result in What One Might Reasonably Term the "Ugly American Effect": Interpreters Will Tell Western Researchers What They Want To Hear, and The Linguistically Challenged Researchers Will Remain Blithely Ignorant

In some instances, interpreters/translators may have a material or other interest in providing misinformation to survey researchers. Thus, for example, to enhance their own status, the status of the institution they represent, or to maintain funding for a research project from which they or their institutions benefit, interpreters, understandably, may distort responses.

How does one address this threat to data quality? Few American researchers know Chinese. The same will hold for the foreseeable future. Therefore, the best that one can do, perhaps, is to try to identify interpreters/translators who have no vested interest in maintaining the research project or its funding.

Americans with domestic experience in program evaluation and similar endeavors, however, will immediately surmise that vested interests quickly develop. The ostensibly neutral, disinterested interpreter/translator may develop a strong interest in maintaining employment. Further, given the rather low level of sophistication of most data collection efforts which survey researchers have undertaken in China to date, it is typically easy for the interpreter/translator to surmise the purpose of the research project and to infer "good" answers. Under circumstances such as these, distorted responses seem virtually certain.

Moreover, Chinese employees do not have the luxury of moving from one place of employment to another at their own discretion. As a result, both interpreter/translators and respondents of all kinds may surmise and provide what they perceive to be favorable responses. After all, to do otherwise, is to risk alienating oneself from colleagues and co-workers. Since job-to-job mobility is controlled by the government, this would mean unnecessary unpleasantness and stress, from day to day, simply because of being on the job with people whom one has represented unfavorably. Evaluations, as a result, typically yield favorable outcomes.

Western researchers may glibly judge the commonplace nature of such events as manifestations of parochialism, particularism, and lack of a well-developed ethos of professionalism. Those who do so, however, might recall the well-known distinction in American social science between "cosmopolitans" and "locals," and the frequent warnings in American program evaluation texts concerning the disastrously sanguine outcome which typically follow the work of so-called in-house evaluators.

Even in the Same Dialect, Chinese Consists of Many Specialized Languages, and No One Speaks Them All

It may seem obvious that in a rapidly industrializing society, one that is striving to become more technology-intensive, shared expertise is essential to communication about a variety of issues. Nevertheless, too often Western survey researchers employ interpreters/translators who, while they are fluent in both Chinese and English, lack the specialized knowledge and vocabulary that will enable them to facilitate the collection of desired information.

For example, if researchers are interested in the application of distance education, a concept well-known to American researchers, they may not know that in Chinese distance education and traditional correspondence education are referred by non-specialists using the same terms. As a result, unless the interpreter/translator is an educator with at least rudimentary knowledge of distance education and Chinese linguistic usage pertaining to this practice, methodologically fatal confusion may occur. Western researchers may think they are collecting, analyzing, and interpreting information concerning the relatively high- technology endeavor which we commonly refer to as distance education. In truth, however, they may be inadvertently studying old-fashioned correspondence education, a low-tech endeavor, indeed.

This may seem to be an implausibly extreme example, but it is certainly not outside the realm of possibility. Beyond this, it makes the case very starkly that Chinese, as with all other languages, is heavy-laden with specialized universes of discourse. The survey researcher who is not sufficiently sensitive to this is at a decided disadvantage. He/she again, moreover, invites contempt from respondents and other Chinese respondents with what may seem but another careless display of Western arrogance and ignorance.

Conclusion

Throughout this paper we have sought to take advantage of the virtues of triangulation, or the employment of a multiplicity of research methods. Our primary objective has been to begin cataloguing difficulties associated with usual quantitative survey research practices in developing country settings, and to show how this process can be accomplished through use of qualitative research techniques. In effect, we have sought to show yet another way in which quantitative and qualitative techniques are genuinely complementary.

We think we have succeeded in applying ethnographic methods in identifying sources of quantitative data deficiencies, and perhaps in finding ways to remedy some of these deficiencies. We acknowledge, however, now that the paper is finished, that our work seems no more methodologically formal and routinized than the article by Chapman and Boothroyd (1988), which provided the impetus for this project. Perhaps this is because ethnography at its best is much more about substance than it is about research technique.

It may be that routinization of the application of ethnographic techniques in evaluating quantitative research is antithetical to the inherently exploratory and flexible nature of ethnography.

It seems clear, though, that the participation and substantive knowledge of the ethnographer is essential, not only as a complement to quantitative survey methods, but in guiding proper application of those methods.

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Research Seminar Focus: Nontraditional Assessment

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Abstract

Typical methods of assessing the learning process and judging the value of learning outcomes are easy-to-administer tools such as multiple choice, true/false, or fill-in-the-blank tests. Recently the shortcomings of these traditional assessment tools have generated interest in other forms of assessment. These nontraditional assessment tools are the focus of the 1994 Delta Pi Epsilon research seminar. An overview of assessment is presented including types of knowledge and assessment, standards in relation to assessment, alternative forms of assessment, and considerations in designing and implementing assessment activities.

The objective of our research seminar is to encourage the development of research skills by providing an opportunity to review and apply principles or knowledge acquired in your individual professional education programs. You will have the opportunity at this conference to gain "hands on" experience with research procedures, and I hope the ideas presented will help you to pursue exciting research endeavors in your areas of interest. An added bonus will be the opportunity to develop important professional relationships, as you work closely with each other over the next several days.

At the last conference, the seminar focused on teaching problem solving. Preselecting the "problem area" expedited the development of the specific problems; and this format resulted in a successful learning experience. The topic selected for this year's seminar is nontraditional assessment. My goal is to provide a brief introduction to this topic and specifically to establish the need for research in this area. I will provide an overview of assessment, identify types of knowledge, define types of assessment, discuss the relationship of standards to assessment, provide alternative techniques that may be used as tools for measuring student learning, and present issues relating to designing and implementing assessment activities.

Overview of Assessment

Perhaps the best way to define assessment is to identify what it attempts to accomplish. Assessment techniques are used to evaluate the learning process and to judge the value of specific learning outcomes. Because tests and assessments can influence educator behavior, they are viewed as potent tools for improving educational standards. Pressures at the local, state, and federal levels have resulted in increasing emphasis on assessment results and the uses made of these results, as well as concern about the forms of student assessment. Parents want to know: Are students learning the "right things?" and Are teachers teaching the "right things?" This desire for accountability by the public and professional sectors has escalated interest in the types of assessment techniques used.

In the past, a typical assessment program included multiple choice, true/false, or fill-in-the-blank tests. They were chosen because they were easy to administer to large numbers of students, and consequently, they have been used repeatedly. Students in the United States are the most tested students in the world; but according to Wolf, LeMahieu, & Eresh (1992), we have rarely developed *productive* assessment and accountability systems.

Archbald and Mann (1988) indicate that traditional tests tell us little about the quality of a student's specific accomplishments and often measure trivial, meaningless learning. Critics have identified many other problems with these traditional methods of assessment. Among those problems are: creates stress that may negatively impact a student's performance; focuses on errors, mistakes, low scores and other incompetencies; discriminates against some students because of cultural background and learning style; regards testing and instruction as separate activities; and produces scoring materials that students often never see again. Armstrong (1994) addresses these problems and provides a complete list of the ways in which nontraditional measures are superior to standardized testing in promoting educational quality.

One of the most vocal critics of traditional assessment is Laura Resnick, director of the Learning Research and Development Center (LRDC) at the University of Pittsburgh, who believes that standardized exams drive classroom practice in the wrong direction. In an interview with O'Neil (1992) she indicated that these exams, when judged against the criterion of assessing and promoting a thinking curriculum, fare badly for several reasons: (1) knowledge and skill is perceived as bits of information that can be recalled rapidly and without reflection; (2) questions are presented as isolated and unconnected with each other; and (3) original interpretations are not expected nor rewarded.

Types of Knowledge

An appropriate assessment program is directly related to learning as prescribed by a given curriculum. The purpose of the

evaluation or assessment is to provide evidence that students learn to do or know the things the program purports to teach. What we learn is broadly defined as knowledge: facts, truths, or principles that are or may be known. Jonassen, Beissner, and Yacci (1993) identify three types of knowledge: declarative, structural, and procedural.

Declarative knowledge represents awareness of some object, event, or idea and enables learners to know or define. This knowledge forms the basis for thinking about and using information. An example would be specific information about types of insurance policies.

Procedural knowledge describes how learners use or apply their declarative knowledge. Solving problems, forming plans, and making arguments are procedural knowledge. Most believe that without the awareness of the objects of performance, performance would be impossible. Deciding which type of insurance to buy for a given set of circumstances is an example of procedural knowledge.

Structural knowledge facilitates the translation and application of declarative into procedural knowledge. It enables individuals to understand how declarative knowledge is interconnected with other declarative knowledge which forms still new understandings. For example, the interaction of a student's knowledge of specific types of insurance policies with other knowledge about cars or houses is creating structural knowledge. All three types of knowledge are present in learning, and structural knowledge is essential for problem solving and other higher order thinking.

Awareness of the types of knowledge facilitates the development and selection of learning strategies, as well as assessment techniques that should be used. For those interested in a comprehensive discussion of assessment techniques for structural knowledge, see Jonassen, Beissner, and Yacci (1993).

Types of Assessment

Generally speaking, there are two terms that describe the assessment process: performance assessment and authentic assessment. Meyer (1992) indicated that these terms may not be used interchangeably. On the other hand, Herman, Aschbacher, and Winters (1992) indicated these were synonymous and meant "requiring students to actively accomplish complex and significant tasks while bringing to bear prior knowledge, recent learning, and relevant skills to solve realistic or authentic problems" (p. 2). Those who define the terms as different concepts of assessment view each as follows:

Performance Assessment. Performance assessment is characterized by students performing specific behaviors that are measured by observations and judgements made by an evaluator/teacher. It is grounded in the "behaviorist" definition of learning as a change in behavior. This may assume that learning has occurred only if the behavior can be demonstrated (Skinner, 1974) or may have other assumptions. For instance, Vygotsky (1962) believes a learning zone exists in which behavior may be achieved with adult help before it can be achieved independently. On the other hand Piaget (1954) and Bandura (1977) believe a period of knowledge construction results in behavior change only after a cognitive scheme has been developed and that learning can occur through observation even though it will not necessarily be demonstrated unless conditions are appropriate.

Authentic Assessment. On the other hand, authentic assessment occurs in a context more like that encountered in real life. Authentic assessment is not totally new. In fact this type of assessment was used in the past when standardized tests were not so popular. Teachers often use components of authentic assessment, but unfortunately the results are not assessed systematically. Developing a systematic way of evaluating every child's performance and carefully recording assessment results are crucial components of authentic assessment.

According to Armstrong (1994) the two most important prerequisites to authentic assessment are observation and documentation. Authentic measures allow students to show what they've learned in context--the setting that closely matches the environment in which they would be expected to show that learning in real life. The virtues of authentic assessment versus standardized testing include: assessment on an ongoing basis provides a more accurate picture of a student's achievement; provides multiple sources of evaluation that reflect student progress; engages the student in a continual process of self-reflection, mediated learning, and revision; results in products that have value to students and others; deals with processes as much as final products; encourages cooperative learning; and examines students in unobtrusive ways within the context of their natural learning environments. Essentially using the term "authentic" with assessment is an attempt to distinguish between that which is significant and meaningful and that which is trivial and useless.

The Relationship of Standards to Assessment

Authentic assessment is complex and the teacher must clearly define all domains that will be assessed. Explicit standards of performance must be set and then numerous ways must be defined to enable all students to reach these standards.

Wiggins (1991) indicated that the relationship of standards as a part of authentic assessment rests in the knowledge that

> standards have nothing to do with standardized proxy tests and arbitrary cutoff scores. Standards are educative, specific examples of excellence on the tasks we value...Standards are upheld by the daily, local demand for quality and consistency at the tasks we deem important: standards are met by rigorous evaluation of necessarily varied student products and performance against those standards (p. 19).

Specific standards of authentic instruction (upon which authentic assessment is based) have been identified by Newmann and Wehlage (1993) as:

1. the degree to which students use higher-order thinking,
2. depth of knowledge,
3. connectedness to the world in which we live,
4. substantive conversation which includes interaction about the ideas of a topic, sharing beyond the teacher's script, and improving the collective understanding of a theme or topic, and
5. social support scales involving high expectations, respect, and inclusion of all students in the learning process.

The National Center on Education and the Economy (NCEE) has worked with the LRDC towards implementing a national system of education standards and measurements. Tucker, president of NCEE, believes that "delineating high standards and developing better assessments to gauge whether students meet them may influence classroom practice in ways that have eluded previous school reforms" (O'Neil, 1992, p.1).

The New Standards Project, an outgrowth of the Commission on the Skills of the American Workforce, envisioned three types of national standards:

1. Content standards: what students should know and be able to do in various subjects and domains.
2. Performance standards: benchmark exemplars of student work would reflect "how good is good enough."
3. School delivery standards: determining whether schools are giving students the opportunity to learn material reflected in content standards (Association for Supervision and Curriculum Development, 1992, p.3).

Bergen (1993/94) indicates students will master the performance standards through repeated opportunities to demonstrate their learning. To achieve the goal of implementing standards, three Ps--performance tasks, projects, and portfolios--are highly recommended (O'Neil, 1992). These are often referred to as alternative forms of assessment because they are not standardized multiple choice, true and false, or fill-in-the-blank tests.

Alternative Forms of Assessment

Common characteristics found in alternative assessments are identified by Herman, et al. (1992) as: asking students to perform, create, produce, or do something; tapping higher-level thinking and problem-solving skills; using tasks that represent meaningful activities; invoking real-world applications; using human judgment rather than machines to do the scoring; and requiring new instruction and assessment roles for teachers. Some of the alternative forms of assessment identified by Resnick & Resnick (1989) and Armstrong (1994) are:

Open-ended writing assessments. Several states and the National Assessment of Educational Progress (NAEP) have adopted open-ended writing assignments in public accountability systems because their use has shown the feasibility of using complex, integrated performances rather than series of isolated questions.

Portfolio assessment. Individuals collect work over a period of time, select a sample of the collection that best represents their capabilities, and submit these portfolios to a jury or panel of judges.

Experiments or investigative projects. Research is conducted and reports are submitted to an examining board. The reports are rated on theoretical understanding, planning, design, use of procedures and equipment, possible alternative solutions considered, and quality of the written report.

Station activities. Individual students use equipment to investigate a phenomenon and answer open-ended questions about it. Exercises may be graded on the basis of students' written answers (their products) or may be rated on the processes students revealed as they worked.

Videotaped performances. An examiner interviews a student in a manner designed to probe understanding and thinking abilities, and a different set of graders score the student's performance. Multiple criteria can be used for grading these documented observations or performances of this kind, which can be reduced to reliable single scores for public accountability purposes.

Audio cassettes. In a similar vein, audio cassettes can be made to document student performances that require samples of oral language or other auditory performances.

Photography. Pictures of projects that have been completed but are too fragile or bulky to preserve can be recorded for the record with photographs.

Student interviews. Teachers meet with students to discuss school progress, broad interests and goals, and other relevant issues. This may be combined with videotapes or audio cassettes to preserve the information for comparison at a later date.

Calendar records. Students record what they do on a monthly calendar and submit for teacher/peer feedback or for a portfolio presentation.

Teacher-kept records. Teachers may keep a journal with accomplishments, interactions, or other relevant information.

Sociograms provide a visual record of student interactions in class. **Informal tests or criterion-referenced assessments** on a given set of skills can be administered. **Checklists** for these skills or content areas used in the classroom provide insight into the progress toward goals.

Debriefing activities. Teachers interview students about projects, products, and demonstrations. The student explains what, why, and how and reflects on possible changes.

Implementing an Assessment

Once the type of assessment is selected, Wiggins (1992), Director of Research and Programs at the Center on Learning, Assessment, and School Structure (CLASS), identified key questions that must be asked:

1. What kind of essential tasks, achievements, habits of mind, or other valued "masteries" are falling through the cracks of conventional tests?

2. What are the core performances, roles, or situations that all students should encounter and be expected to master?

3. What are the most salient and insightful discriminators in judging actual performances?

4. What does genuine mastery of each proposed assessment task look like? Do we have credible and appropriate exemplars to anchor our scoring system? Have we justified standards so they are more than local norms?

5. Are the test's necessary constraints--reliance on help available from others, access to resources, time to revise, test secrecy, prior knowledge of standards--authentic?

6. Do our assessment tasks have sufficient depth and breadth to allow valid generalizations about overall student competence?

7. Have we ensured that the test will not be corrupted by well-intentioned judges of student work?

8. Who are the audiences for assessment information, and how should assessment be designed, conducted, and reported to accommodate the needs of each audience? When are audit-tests appropriate and inappropriate (p. 26)?

Considerations in Designing and Implementing Assessment Activities

After selecting the type of assessment, a scoring system must be identified. Two key questions must be answered: (1) What qualities or characteristics represent each level or quality of response? and (2) What errors justify the lowering of scores.

Linn, Baker, and Dunbar (1991) pointed out that many issues concerning the evaluation of new forms of assessment being developed have not been sufficiently addressed. They suggested a broader view of validity in a framework that is consistent with "both current theoretical understandings of validity and with the nature and potential uses of new forms of assessment. Linn, et al. (1991) includes the following incomplete list.

1. **Consequences**. Consequences of using a particular form of assessment must be seriously considered. Evidence needs to be collected about the intended and unintended effects of assessments on the ways teachers and students spend their time and think about the goals of education. Standardized tests can be corrupted and so can other forms of assessment.

2. **Fairness**. Shifting from fixed-response standardized tests to performance-based authentic assessments does not eliminate the potential for biases against minority groups, nor does it eliminate concerns about the selection and scoring of performance tasks. Standardized tests can be unfair, but so can other forms of assessment.

3. **Transfer and Generalizability**. Transfer and generalizability must be carefully considered. According to Shavelson, Baxter, and Pine (1990), just because students perform well on one task does not necessarily mean they will perform as well on similar tasks. If this is the case, an assessment has a limited degree of transfer and generalizability.

4. **Cognitive Complexity**. Whatever the nature of an assessment, the cognitive complexity of the tasks and the responses they elicit should be carefully analyzed and identified as criteria for evaluation. Just because the information presented is more difficult or encourages the development of thinking skills does not mean students will use these processes.

5. **Content Quality and Coverage**. Content needs to be consistent with the best current understanding of the field and should be worthy of the time and effort of the students and raters. While *depth* of content is important, *breadth* is also a primary consideration. One method of assuring content quality and coverage is to involve subject matter experts.

6. **Meaningfulness**. Better assessments encourage students to deal with meaningful problems. The result is an improvement in the quality of the students' educational experiences. Analysis of tasks can provide some relevant information on this criterion.

7. **Cost and Efficiency**. A frequently raised objection to authentic assessments is, of course, high cost. Multiple judges are needed every time an assessment is done. Creative thinking is needed to deal with this problem.

Resnick & Resnick (1989) indicated that for those who use tests as a means of monitoring school achievement, three principles serve as guidelines and should influence the final choices.

You get what you assess. If we develop multiple-choice tests, students will practice answering multiple-choice questions. If we put debates, discussions, essays, and problem solving into the system, students will spend time practicing those activities.

You do not get what you do not assess. What does not appear on tests tends to disappear from classrooms in time.

Build assessments toward that which you want educators to teach. Assessments should be designed so that when teachers prepare their students to perform well they exercise the kinds of abilities and develop the skills and knowledge that are the real goals of educational reform.

Summary

Assessment tools should be sensitive enough to identify changes that have occurred in students' learning. Whether or not students are learning the "right things" can be determined only when appropriate assessment tools and techniques are selected. Authentic assessment that occurs in a real life context should be the goal of educators. Three types of assessment tools viewed as most likely to accomplish this goal are performance tasks, projects, and portfolios, but there are others as well. Some business educators have used these techniques; but scoring procedures have created concern. What is needed now is a refinement of the process so that we are confident of the reliability and validity of the techniques used to assess knowledge acquired. Key to achieving appropriate assessment are these three guidelines: (1) You get what you assess. (2) You do not get what you do not assess. and (3) Build assessments toward that which you want educators to teach. Identification of the qualities desired as a result of the learning process must be clearly stated. Tied to curriculum and designed to be taught to, authentic assessments can be essential tools for raising authentic educational achievement.

This brief overview suggests several research questions:

Is there a relationship between how teachers describe their preferences for assessing student performance and what they actually do in the classroom?

Is there a relationship between how teachers describe their assessment practices and selected teacher characteristics such as age, years of teaching experience, business subjects taught, level of business instruction provided, or level of education completed in terms of advanced degrees?

Such questions may be adequately addressed using an empirical approach. Other questions dealing with understanding people's motives, meanings, and intentions may use an interpretive or qualitative focus.

Which of the nontraditional assessment tools are most problematic for teachers and why?

Why do students encounter problems when a specific tool is used for evaluation?

The purpose of this research conference is to work with a question or questions that can be investigated in the next two days so that you'll have an opportunity to apply the information you have learned about doing research. The questions presented are merely examples of issues that can be addressed. Take time to reflect on your own assumptions about nontraditional methods of assessment and which questions would assist you in further clarifying your thinking.

Tomorrow you'll hear more about defining the problem, designing qualitative and quantitative research, and determining statistical design. You'll also be introduced to a public domain software program that will allow you to do your own statistical analysis with a simple-to-use program.

Most importantly, at the conclusion of this research seminar, you'll address a significant issue pertinent to all business educators. You'll also have a much better idea about the advantages and disadvantages of various types of research activity.

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Survey Research: Check All Concerns that Apply

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Abstract

This article addresses some concerns inherent in conducting survey research. Assuring the accuracy and validity of collected data, the representativeness of the sample, and the careful preparation and mailing of the survey instrument continues to pose problems that may affect the findings. Even though the use of survey research to find the answers to questions is increasing in popularity, researchers must pay careful attention to all details in the design, preparation, and conduct of the survey research processs to ensure reliable findings.

Research is a systematic method of providing answers to questions. This implies a logical and orderly approach in conducting research. The systematic method followed by most researchers involves a plan of identifying a problem for study, examining selected variables for relevancy through a review of the literature, constructing hypotheses where appropriate, creating a research design to investigate the problem, collecting and analyzing appropriate data, and finally drawing conclusions concerning the relationships of the variables.

Several research designs can be appropriately used in following this six-part systematic plan, but any design used must relate directly to the problem and to investigating the variables selected for examination or testing. The experimental design, along with its many variations of pre-experimental, true experimental, and quasi-experimental designs, has contributed much to finding the answers to questions sought by researchers. Survey research, too, has provided an information data base on which researchers may draw to determine dimensions of information difficult to ascertain with an experimental design. A qualitative research design may be used by itself in examining a problem needing more in-depth information, or it may be used in conjunction with an experiment or survey.

The purpose of this article is to highlight some concerns that must be acknowledged and should be addressed when using a survey research design. For the purposes of this discussion, survey research will include the use of questionnaires, interviews, polling, or any other method that involves receiving information directly from a respondent.

Surveys have been found useful in trying to determine what people are thinking at any specific time, whether it be about the extent of something they know or their attitudes or beliefs about an issue. Properly constructed and used, surveys can be employed to great advantage in discerning information needed for making decisions.

Increasing Usage of Survey Research

The popularity of using surveying to collect data continues to increase and today represents a major industry. The increasing use of surveying or polling is derived both from greater need and greater opportunity. The need is sparked by the condition of limited resources and unlimited desires, while the unparalleled access of targeting selected populations using technology creates new and exciting opportunities. The U.S. government and the business community are both increasing their use of survey research, because the information collected helps them gain a greater understanding of the issues, alternatives, and future impacts of their decisions. Survey research allows for this collection of data quickly and at a reasonable cost.

Today, politicians rely heavily on the findings of their pollsters. Any change in the polls can result in a quick response such as the modification of public policy. President William Clinton and his administration openly acknowledge that they pay attention to the findings of such research. Members of Congress also use survey research to identify major issues of concern to their constituents and to provide guidance not only in how they should vote, but also the most effective way to design television political election messages and newspaper advertising. The method allows for the precise targeting of a message to the audience. Incumbents and aspiring politicians at all levels can determine what to discuss, when to discuss it, and even where not to hold such a discussion. Other governmental units also use the findings from surveys to design and administer various social service programs or to determine the extent of public support for programs affecting children, minorities, the elderly, inner city residents, or rural inhabitants.

Business also uses survey research to answer their questions. For example, banks often poll their customers and non-customers to determine the financial services they find most attractive,

whether it be the hours the bank should stay open or the extent of approval for the addition of proposed services for retirees.

Fast-food restaurants and retail stores have long used survey research in making their establishments more attractive to customers. Pollsters are frequently positioned in shopping malls to talk with people concerning their buying habits, their likes and dislikes, or their beliefs about something that may relate to a product or a store.

Colleges and universities sometimes poll their faculties or students when input is desired concerning a campus issue, and the administration or student leaders think more information is needed to formulate an effective policy. Issues might range from determining beliefs about the erection of a new sports arena to identifying viewpoints about a parking problem.

Although we have increased the use of survey research and have derived many benefits, traditional concerns still exist and must be addressed. Assuring the accuracy and validity of information collected, the representativeness of the sample, and the careful preparation and mailing of the survey instrument continues to pose problems that may affect the findings and thereby taint the research.

Addressing Selected Concerns

Although intended to obtain information from people in a straight forward manner, one concern with the survey research design is its dependency upon the ability of respondents to be able to accurately convey the requested information. Perhaps the respondent is uncertain or does not really know the answer, but because the pollster (or questionnaire) seems to be "pushing" for an answer, a response may mimic what the person perceives that the pollster would like to hear. Also, people generally like to present themselves looking the best they can, so they may be inadvertently erring in their responses.

Such weaknesses of survey research will limit the validity of the findings. Validity is usually discussed in terms of internal validity and external validity. Internal validity affects the certainty that the findings are logical and acceptable based on the research design. On the other hand, external validity refers to the extent that the study can be generalized based on the procedures and methodology used. Although weaknesses affecting the validity can be overcome to a great extent, not all researchers do so.

Representativeness of the sample presents another challenging opportunity to researchers. Representativeness required that the sample polled have the same characteristics as the total targeted population. This requirement is difficult to meet unless attention and diligence are applied when designing the study. However, the findings from an unrepresentative group can result in questionable actions or policies of governmental units, business organizations, or educational institutions.

Because of concerns for validity and representativeness and how they affect the variables, survey research must demonstrate the same rigor as should be reflected in other methods of research. Admittedly, because not all researchers have shown sufficient vigilance in addressing these concerns, some academic fields and their journals have reduced their publication of survey research.

Tuckman lends insight when he discusses his difficulty with some survey research:

> A particular kind of "research" that frequently appears in the education milieu is survey research. In a school survey, a procedure common in education, variables frequently are studied using a simple counting procedure with little or no attempt made to determine in a systematic fashion the relationship between them and other relevant variables. To do so would require control or comparison data, and often none are collected.
>
> . . . The term comparison should be stressed since survey research done on a single group often leads to conclusions about cause-and-effect relationships that lack validity.

Although access to a comparison group may not always be feasible, researchers should strive to overcome this inherent weakness of survey research when they can to improve the validity of a study.

Selecting the Sample

Another concern occurs when selecting the sample and that is determining how many people should be contacted. Frequently, research textbooks vaguely suggest that one should survey a "sufficient number" to obtain the information sought. This is not a very helpful approach when one is looking for an absolute number.

Although several formulae are available, such as the NEA Small Group formula and others, Wunsch presents a composite table derived from other accepted sampling models that provides a specificity that is useful in obtaining an "actual number." This table provides the base figure related both to the size of the total population and to the level of confidence sought. If it is considered likely that the statistical tests chosen will need a greater frequency in any of the cells, then the sample should be increased enough to overcome such a probability. Otherwise, cells may have to be collapsed in order to provide meaningful data. It is usually desirable to be able to test hypotheses without collapsing the data into larger units.

In addition, researchers have to be cognizant of the percentage of return they receive. Wunsch provides "cut-off" points for determining when sufficient data has been gathered. Typically,

two or three follow-ups are needed when using a mailed questionnaire, however, what is important is whether you have collected responses representative of the total group rather than just a larger percentage in and of itself. For example, if a 25 percent return accurately measures the 100 percent in your sample population, collecting additional data will not add any more meaning but will represent an additional cost of conducting the research. Sometimes researchers get more excited over getting a high return and pay little or no attention as to whether the return is representative.

One way to help insure that your responses are representative is to tally any pre-known information about the sample before contact is made. Traditional characteristics that you will have access to if you are sending a mailed questionnaire are gender, ZIP code, and geographic area or region. This information can be found on the mailing list of your sample. Then, when you receive the responses, you can compare the percentages of the respondents with the percentages of the nonrespondents on these characteristics to see if they meet the standards described in the Wunsch article.

Preparing the Instrument

One way to encourage people to return their completed survey instruments is to pay special attention to the construction and formatting of the instrument. Care must be taken in preparing any survey instrument and constructing its questions. This means that a logical content flow is needed, clear directions are provided, all questions must relate to the problem and research questions of the study, questions are clearly stated with no bias evident, and the instrument can be completed within a short time. Pet peeves of respondents include being asked for information readily available from other sources or trivial questions considered to be ridiculous or unimportant. Ambiguous questions or personally offensive questions also frustrate respondents. Equally disturbing are questions requiring excessive complex thinking on the part of respondents.

Asking leading or loaded questions, multiple-topic questions, or too many hop-and-skip questions will not encourage accurate answers and may cause a respondent to decide not to complete the survey, a situation to be avoided. Frequently, researchers may seek expert assistance to assure that content validity is achieved by the questions, that is, are the questions written to obtain the needed information. A helpful practice is to have a pilot group who have the same characteristics as the sample population test your survey instrument for clarity and ease of completion. In this way, the concern of potential problems can be alleviated before the study is underway.

An example of what can happen can be found in a 1994 widely publicized survey, reported in the Chicago Tribune, that determined that one in five Americans doubted the Holocaust happened. The professional poll taker who conducted the national study now says, "because the question was so clumsily worded it drew many opposite responses." What happened was that the poll ended up with what the pollster called a "flawed" query, a double-negative construction that confused respondents. Most research books present useful information concerning the writing of questions and showing the various types of questions that are appropriate to prevent this kind of mishap.

Planning for a Representative Response

Researchers are always concerned about getting a sufficient response to be able to draw conclusions for their studies. One method some researchers have found helpful is to adopt Dillman's Total Design method (TDM). In his book entitled *Mail and Telephone Survey*, Dillman says that

> The problems of response quantity and quality are solved in part by a procedure called the "Total Design Method." This is nothing more than the identification of each aspect of the survey process (even the minute ones) that may affect response quantity of quality and shaping them in a way that will encourage good response.

Dillman's system is based on three things that must be done to maximize survey responses: (1) minimize the costs of responding; (2) maximize the rewards for doing so; and (3) establish trust that you will deliver those rewards. He cites many examples as to how these can be done. The following advice offered by Dillman to obtain a maximum response rate are succinctly summarized, however, you should study Chapter 5 in his book to receive maximum assistance.

Dillman points out that TDM works because it is based on convincing people that a problem exists that is important to the group being surveyed, and that their help is needed to find a solution. Personalization also plays an important part in obtaining cooperation of the respondents. Strict adherence to the time the follow-up efforts are mailed is also stressed.

Cover letter. The role of the cover letter is to convince the recipient of the importance of the project by providing a reasonable explanation of the subject of the study, why it is of benefit to a group with which the recipient identifies, and the importance of the respondent to the success of the study. The overall tone of the cover letter should be one comparable to what one business person would say to another who know each other only slightly, or not at all, in asking for their help. One full page is the maximum length. Letterhead stationery should be used with the recipient's name and address placed in the inside address section of the letter. The exact date the letter is mailed should be included and the signature on each letter should be handwritten. An identification number should be prominently stamped on the cover of the questionnaire; how this identification umber will be used must be explained in the cover letter. Then the cover letter and a stamped business reply envelope are carefully folded and placed for mailing in a regular business stationery envelope on which the respondent's name and address are individually written. Sufficient first-class postage is placed on the envelope, and the survey instrument is mailed.

Follow-up efforts. Exactly one week after the first mailing, a postcard is sent to all recipients of the first mailing. The message can be preprinted, but the respondent's name and address should be typed and an individual signature applied. The message should serve as a thank you to those who have returned the survey and as a reminder to those who have not.

Exactly three weeks after the original mailing, a second follow-up effort is conducted. It consists of a cover letter that once again informs the nonrespondents of the basic appeals set forth in the original cover letter, a replacement questionnaire in case they have lost the original, and another stamped return envelope.

The last follow up takes place exactly seven weeks after the original mailing. Once again, it consists of a cover letter and another copy of the questionnaire along with a stamped return envelope. this follow up should be sent by certified mail to the remaining nonrespondents.

These brief remarks do not do justice to Dillman's explanation of the Total Design Method and the response rates generated. He reports that the average response rates for the 48 surveys he used in testing his system was 74 percent, and no survey obtained less than a 50 percent response rate. An even higher response rate was obtained in those studies that followed his instructions exactly (77 percent average), and 71 percent for those who used TDM in part. As respondents continue to be bombarded with survey instruments, it behooves researchers to look for techniques that have proved to be successful in eliciting information.

Using survey research requires careful attention and planning so as to accommodate legitimate concerns that may be overlooked in the haste of finding answers to questions. However, it is the research attribute of carefulness in design and procedures that can yield data that is valid and representative, thus producing reliable findings on which useful conclusions can be drawn.

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Types of Data Used in Survey Research and Their Appropriate Analyses

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Abstract

Researchers sometimes make the mistake of assuming that all data can be analyzed the same way, but different data types require different analysis techniques. Identifying the type of data being analyzed is a good first step in selecting appropriate analysis procedures. Data collected through survey research can be classified as one of four types: nominal, ordinal, interval, or ratio. Each of these four data types is explained, and the types of analyses which are appropriate for each data type are briefly discussed.

Introduction

Due to technological advances in computer hardware and software it is now possible for even the most novice of statisticians to analyze research data. This advancement is encouraging because it diminishes a barrier which many researchers, and potential researchers, have found daunting and often times insurmountable. On the other hand, this advancement is disconcerting because it increases the likelihood of the inappropriate use of statistical procedures. While statistical software alleviates many of the complex and cumbersome computations necessary for implementing statistical procedures, it does not alleviate the need to understand the conditions which must be met in order to properly apply them. An understanding of the types of data which can be collected through survey research is foundational to appropriate statistical analysis. Data can be classified according to four basic measurement scales: nominal, ordinal, interval, and ratio. The purpose of this manuscript is to describe these four data types, and briefly discuss the types of statistical analyses that can be used for each of them.

Nominal Data

Nominal data are simply data which can be assigned to discrete categories. Examples of nominal data are gender and eye color. One of the fundamental characteristics of nominal data is that no attempt is made at rank ordering the data. The only requirement of nominal data is that they can be broken down into discrete categories. For instance, gender can be classified as male or female, and eye color could be blue, green, brown, etc. Nominal data are generally qualitative rather than quantitative, but numeric examples do exist. Consider the numbers on athletes' jerseys. Their real purpose is simply to tell one athlete from another.

Other examples of nominal data are nationality, marital status, political preference, and blood type. Nominal data are sometimes referred to as categorical data or qualitative data. Nominal data which are limited to just two possible values are often referred to as dichotomous data. The classic example of dichotomous data is gender. There are only two possibilities, male or female.

The statistical procedures appropriate for analyzing nominal data are very limited. However, frequency distributions can be used to summarize and simplify any type of data, including nominal data. While frequency distributions are among the most basic statistical procedures, they are also one of the most useful and informative procedures for analyzing survey research. Frequency distributions help you develop a feel for your data. Experts recommend that frequency distributions be calculated for each item on your survey instrument, regardless of data type (Measurement Services Center, 1978). Unfortunately, means and medians cannot be calculated for nominal data. Rather, the only measure of central tendency which can be calculated for nominal data is the mode. The mode simply indicates which category of data has the greatest frequency. While the mode is a useful statistic, it fails to yield the same depth of information as the median and mean.

The most common statistical procedures which are used for comparing subgroups or making inferences about larger populations are not appropriate for use with nominal data. Fortunately, however, there is one powerful procedure for comparing subgroups and making inferences which can be used with nominal data, as well as any other type of data. Crosstabulations, otherwise known as contingency tables, can be used to compare subgroups and make inferences based on the chi-square statistic.

Ordinal Data

Ordinal data differs from nominal data in only one way. Like nominal data, ordinal data can be assigned to discrete categories, but with ordinal data these categories can be rank ordered. An excellent example of ordinal data is military ranks. Not only can military personnel be classified according to discrete categories, but these categories can be arranged in order from lowest to highest. Hence, a private is ranked below a sergeant,

but a sergeant is below a lieutenant, etc. Other examples of ordinal data would be job title (i.e. assistant manager, manger, vice president, and president), order of finishing in a competitive event (i.e. first place, second place, third place, etc.), and letter grades. Although ordinal data can be rank ordered by category, no attempt is made at distinguishing exactly how far apart these categories are. Hence, we cannot assume that the difference between categories is held constant. In other words, we cannot assume that the difference between a private and a sergeant is the same as the difference between a sergeant and a lieutenant. Likewise, in a competitive event such as a race, the first and second place finishers could have finished only a fraction of a second apart, while the third place finisher might have lagged behind by half a minute. This disparity is not reflected in the rank ordering of the finishers.

Each of the statistical procedures which can be used for analyzing nominal data can also be used for analyzing ordinal data. In addition, several other statistics can also be calculated. While means and standard deviations -- the most useful of the descriptive statistics -- are reserved for interval and ratio data, many other statistics such as medians, percentile ranks, ranges, and interquartile ranges can be calculated for ordinal data.

In addition to crosstabulations, several other statistical procedures for comparing subgroups and drawing inferences can be used with ordinal data. Among these procedures are the Mann-Whitney test, the Wilcoxon signed-ranks test, and the Spearman correlation. While these procedures are relatively obscure compared to the procedures commonly used with interval and ratio data, they should not be overlooked. In survey research, there are often situations when it is tempting to treat ordinal data as though they were interval data in order to justify using procedures reserved for interval and ratio data. In cases, where the distinctions between ordinal and interval data are unclear, you will add credibility to your findings if you limit your analysis to procedures suitable for ordinal data.

Interval and Ratio Data

Although there is a clear distinction between interval and ratio data, these two data types are combined in this section because the most widely used statistical procedures for ratio data are also appropriate for interval data. Interval data differ from ordinal data in one slight, but very significant way. Both ordinal and interval data can be rank ordered, but with interval data the difference between ranks is held constant. A common example of interval data is temperature. A ten-point difference on the Fahrenheit temperature scale has the same meaning at any point on the scale. In other words, 50°F is exactly ten degrees warmer than 40°F, and 80°F is exactly ten degrees warmer than 70°F. While it is meaningful to calculate differences between items using interval data, it is not meaningful to talk about ratios between items. For example, it is not meaningful to say that 80°F is twice as warm as 40°F. The reason for this is because temperature does not have what is called an *absolute* or *meaningful* zero. An absolute zero indicates the complete absence of whatever is being measured. Yet 0°F does not indicate a complete absence of temperature. Rather 0°F is a seemingly arbitrary point on the Fahrenheit scale which has little or no scientific importance. This is a confusing concept, so perhaps an example taken from Howell (1992) could serve to clarify the significance of this issue. Consider what happens when we convert 80°F and 40°F to the Celsius scale. 80°F converts to 26.7°C, and 40°F converts to 4.4°C. Using the Fahrenheit scale, the ratio between these two temperatures is 2:1, but using the Celsius scale the ratio between these temperatures jumps up to over 6:1. Hence, by using two perfectly legitimate measures of temperature we yield different ratios for equivalent temperatures. The lack of an absolute zero renders these ratios meaningless.

The difference between interval data and ratio data is simply the presence of an absolute zero. Absolute zeros exist for many common physical measures such as weight, length, volume, or time. For example, a weight of zero pounds indicates a complete absence of weight. Hence, it is meaningful to say that one object weighs twice as much as another. Furthermore, the ratio between the weights of those two objects would remain 2:1 regardless of whether you measured their weights in pounds, kilograms, or any other units. The presence of an absolute zero serves as a consistent reference point for calculating ratios.

The distinction between interval and ratio data may seem confusing. Indeed, scholars frequently disagree over this distinction. For example, some researchers would argue that test scores should never be treated as anything more than interval data. Others would argue that certain test scores can be treated as ratio data. In many cases this distinction is not critical since the most commonly used statistical analyses for ratio data can also be used with interval data.

Once the boundary between interval and ordinal data is crossed, virtually any major statistical procedure can be used appropriately. For instance, the most useful and widely used descriptive statistics, the mean and standard deviation, can now be calculated. In addition, the most widely used tests for comparing subgroups and drawing inferences can also be used. These would include, but not be limited to: *t*-tests, analysis of variance, analysis of covariance, regression, multiple regression, and factor analysis.

Conclusions

All four data types are commonly used in survey research, and in many cases it is fairly simple to distinguish between these data types. For example, gender is clearly nominal. Annual income is clearly ratio, and highest academic degree earned is clearly ordinal. Yet a predicament which is constantly encountered when analyzing survey data is determining how to classify data which is collected through commonly used Likert-type response scales such as standard five-point or seven-point rating scales with responses ranging from extremely ineffective to extremely effective, or from strongly agree to strongly disagree. Data collected through such response scales is clearly ordinal,

but the question is whether data of this sort should be considered as interval, or perhaps even ratio data. This is a critical issue because these types of response scales are so commonly used in survey research. It is difficult to develop a solid argument for treating this type of data as anything more than ordinal, yet it has become a widely accepted practice to treat this type of data as interval (Measurement Service Center, 1978). This argument is only tenable if one assumes, for example, that the difference between strongly agree and agree is comparable to the difference between agree and undecided.

In most cases, it would be clearly inappropriate to treat data from standard response scales as ratio data. Therefore, it would be inaccurate to state that an average response of 2.0 is twice as strong as an average response of 4.0. To do so would imply the presence of an absolute zero. This would not make sense for a scale ranging from strongly disagree to strongly agree. In order for this to make sense one would need to clearly define what it means to have a complete absence of agreement. The lack of an absolute zero is further demonstrated by the ease with which response scales are reversed, and by the fact that some scales start with 1's while others start with 0's.

In closing, it should be stated that the conditions for the appropriate use of the statistical procedures mentioned above are determined by more than just data type alone. For instance, many of the statistical procedures used for interval and ratio data assume that your data is normally distributed. A more thorough investigation of the conditions required for these statistical procedure should be conducted before actually implementing them. Never-the-less, a good understanding of the four data types is the best place to begin for understanding how these statistical procedures can be applied. Furthermore, such an understanding can aid researchers in the design and development of survey instruments by elucidating the benefits and drawbacks of using the various data types.

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